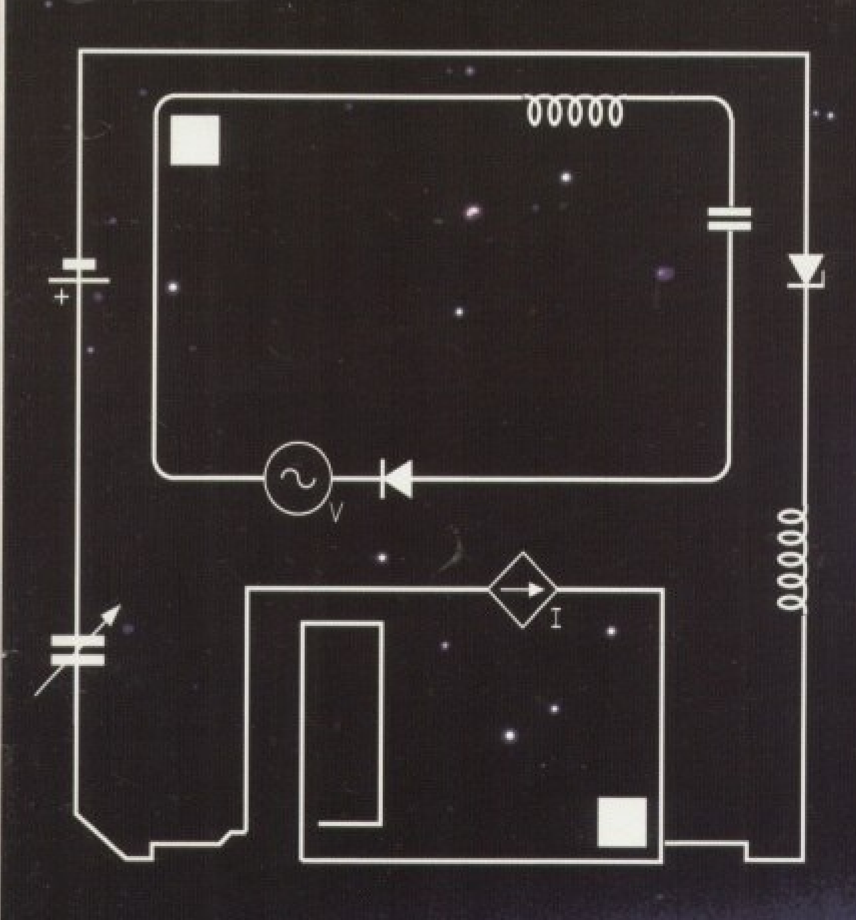
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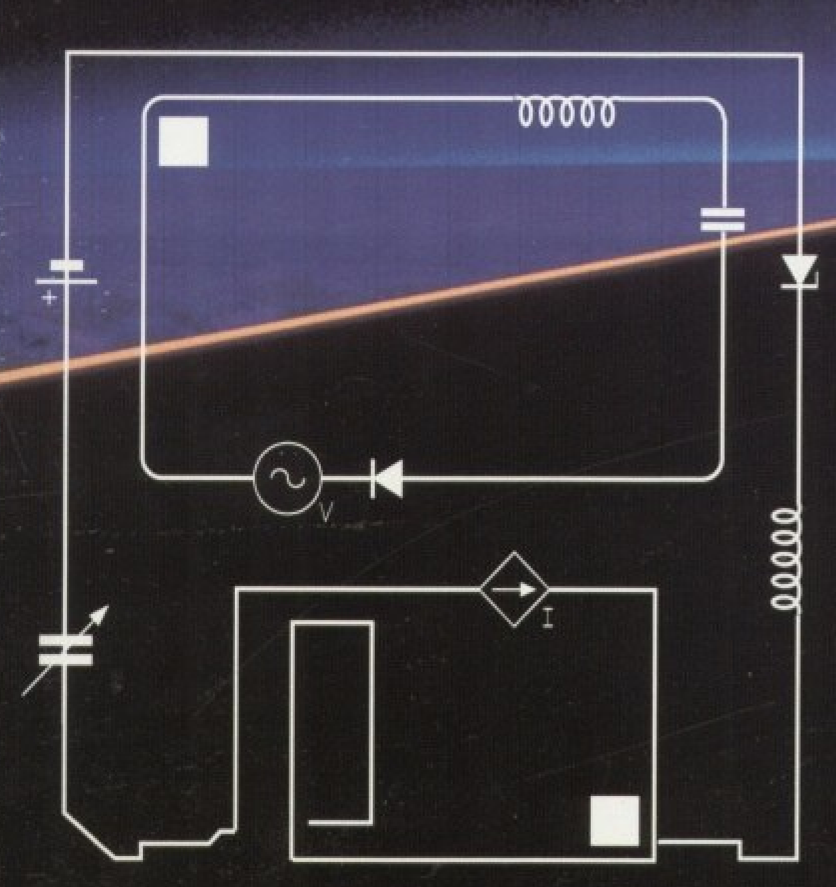
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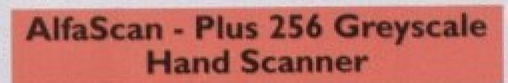
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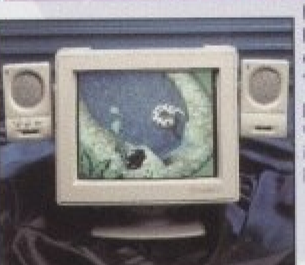
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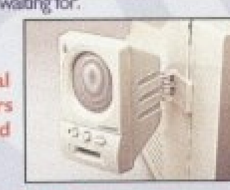
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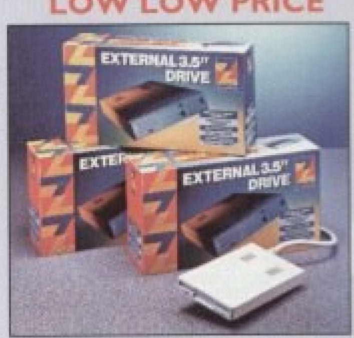
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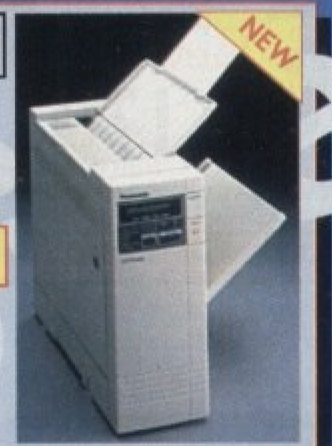
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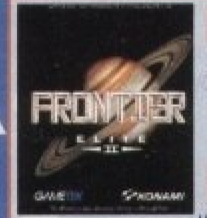
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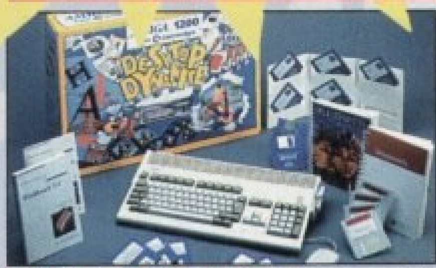
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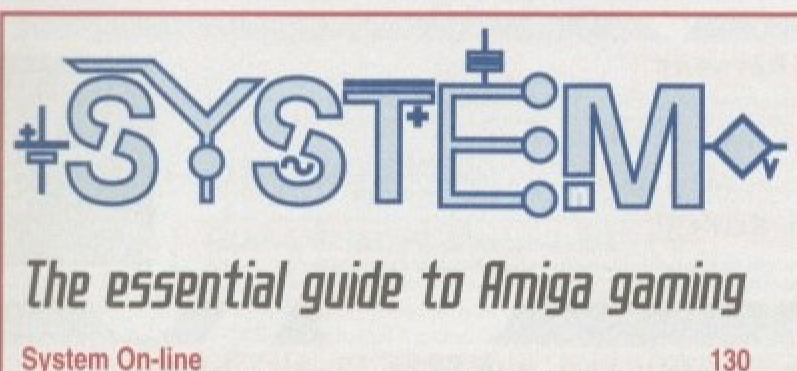
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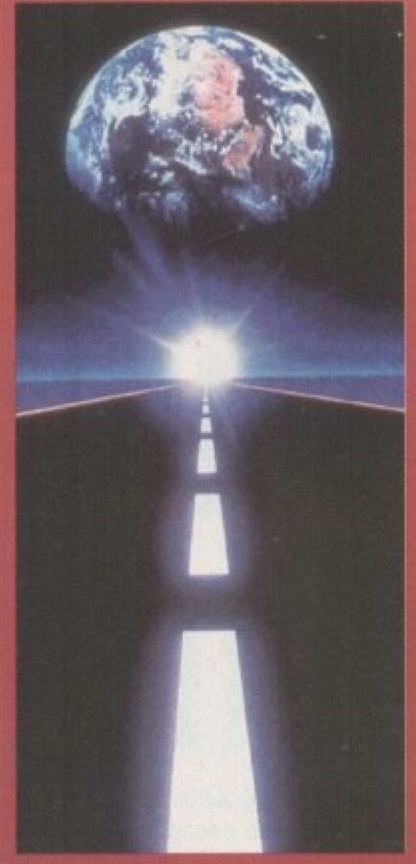


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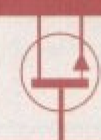
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COVER STORY



As we enter the digital age Paul Austin examines the Amiga's place in the new order.

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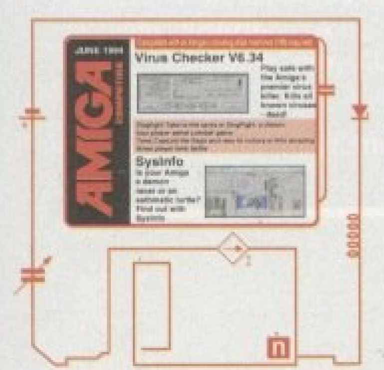
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1		
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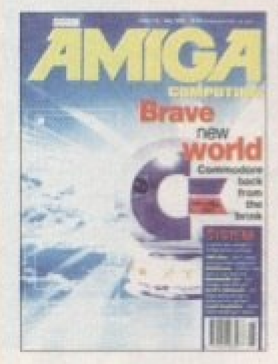
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AMIGA GUIDE

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Turn to Page 94

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By JOHN BUTTERS

Amiga support pledge as CBM losses continue

SOFTWARE and hardware developers have promised to continue supporting the Amiga even if Commodore fail to survive their cash crisis.

With a massive user base for the computer around Europe, companies are confident they can continue to make profit from Amiga products for several more years.

Their commitment comes as financially-troubled Commodore posted an $8.2 million loss for their second quarter – traditionally the year's most successful sales period.

But sales slumped to just $70.1 million from $237.7 million in the corresponding period a year ago and shares in the company sank from $3 to 37 cents each on the announcement.

The weak performance was blamed on financial constraints which hampered the firm's ability to supply products and poor economic conditions in Europe – Commodore's key market.

Although the cash shortfall has been cut back considerably, the company had predicted they would return to profitability in the quarter and now maintain negative equity.

They have warned that without financial help they could be thrown into reorganisation or liquidation proceedings, and are talking with creditors about proposed restructuring.

Power Computing boss Tony Laniri's comments were typical of those from Amiga developers:

"With so many Amigas in use around the world, there's at least three or four years' life left in the machine even if Commodore go down," he said.



Proudfoot: "Commodore have the survival instinct"

And most industry figures believe that even if Commodore crash the Amiga name will continue, and at press time there was speculation of an imminent take over of the firm.

But Commodore's managing director for finance and operations, Colin Proudfoot, is confident the company will continue trading: "Commodore have the survival instinct," he said.

"Market conditions will improve – our restructuring programme has already resulted in reduced losses – and demand for our product will continue to grow in 1994."

Free tickets for Amiga show

AMIGA dealer Gasteiner (081-345 6000) are offering 200 *Amiga Computing* readers free tickets to their Spotlight '94 computer show due to be held on May 28 and 29.

The event will be at the Novotel Hotel in Hammersmith, London and according to the organiser has a line up of exhibitors including HiSoft, Meridian, AlfaData and Power Computing.

They are expected to show several new Amiga products including a 12-bit sound card for the A1200, new software from the United States and a range of CD32 add-ons.

A SCSI hard drive controller for the A4000 will be shown for the first time and Microvitec plan to display their latest multi-sync monitor, the 1438.

From German peripheral manufacturer BSC there will be a A1200 ROM drive and Golden Image promise to offer discounts on their hardware.

The first 200 people to call 081-345 6573 and quote reference AMC1 will each receive free entrance.

Approval stamp to aid buying

A SEAL of approval aimed at making life easier for Amiga owners looking to buy software and hardware is soon to be launched by Commodore.

The manufacturer says the stamp will be issued only after third–party products have undergone "rigorous" tests in their US and UK offices.

Disk drives, scanners and memory expansions are expected to be among the first peripherals to be given the seal, and should be available within the next few weeks.

But already the scheme is facing difficulties, with several players within the market saying they are unwilling to pay hefty fees to Commodore for the use of the stamp.

"We want to give users reassurance when they invest in a machine," said Commodore's David Pleasance.

"The seal of approval will provide that reassurance – a guarantee of quality for the best peripherals and software."

But one industry figure, who didn't want to be named, said end users could find themselves picking up the costs of getting products approved.

COMMODORE QUALITY SEAL OF APPROVAL TM

Stamp: Commodore scheme aims to aid buying

CD-ROM likely for A1200

IT is now likely that a CD-ROM drive for the A1200 will be launched by Commodore this autumn.

The device has been under development for around a year, but last Christmas the firm announced the project had been shelved because of technical difficulties.

Commodore are now considering the release of the CD1200 without compatibility for Mpeg full motion video.

When plugged into an A1200, such a drive would be able to load many CD32 games and audio compact discs, but unable to play video CDs or software containing video clips. Release of the drive is likely to delight the many A1200 owners who have asked for CD compatibility, but CD32 players are worried that it will hold back FMV games.

They believe some games makers will hold back on developing titles containing video footage because they will be able to sell discs to owners of both machines without extra work.

According to industry sources the drive has already gone into production for sale in Germany, and Commodore say they have not set a provisional price for the British market.

CD1200: A1200 to be given CD-ROM drive

NEWS BRIEFS

Aminet goes CD

A CD-ROM containing 3,800 Amiga programs from the Aminet Internet archive is now available from Gasteiner (081-345 6000).

Its 650Mb of software ranges from games to business applications and programming tools, and contains more than 100 demos of full price packages.

According to Gasteiner the Aminet disc is in ISO-9660 format and can be read from most CD systems. It cannot be booted from CDTV. Price, £49.99.

Handy colour

POWER Computing (0234 843388) will soon add an 18-bit colour hand scanner to their range of Amiga products.

The £149 device will come with the full version of Migraph's optical character recognition software and should be compatible with all Amigas.

68030 comes cheap

VIPER will be the A1200's cheapest 68030 accelerator when it is launched by Bedford-based Power Computing (0234 843388) in the next few weeks.

The board will feature a 28MHz version of the 68030 and be able to accept up to 128Mb of memory. A battery-backed clock will come as standard and SCSI-II as an option.

Prices remain to be finalised, but head of the company Tony Laniri expects the unpopulated board to cost in the region of £150.

Pegger spreads Jpeg

A UTILITY which has been designed to enable programs that don't support Jpeg images to use them automatically has just found a British distributor.

By monitoring drawers, Pegger is able to convert Jpeg pictures into a format compatible with most Amiga packages, and its compression is claimed to offer great hard disk saving.

It sells for £99.95 from Meridian Software Distribution (081-543 3500).

Colour refills

COLOUR inkjet printer owners can now refill empty cartridges using Tri-colour Refill. The pack includes 20ml each of magenta, yellow and cyan inks. It is sold by Ilford-based Jerome Russell (081-478 7771) for £9.99.

London gets dealt an ACE

THE second Amiga Centre of Excellence (ACE) has just opened in central London.

The new centre is run by multimedia specialists Premier Vision and aims to provide a one-stop service for professional users looking for complete solutions.

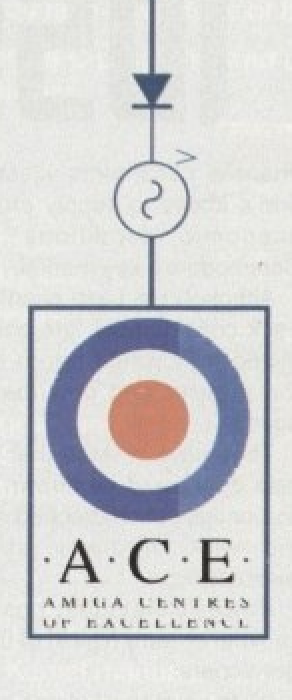
It is hoped that ACE will spread nationwide and into Europe – with each centre combining advice and technical help with the ability to tailor a system to individual customer's needs.

"We'll continue what we've always been doing – but much better in central London," said Premier Vision director Andy Gould. "The concept of ACE is a very good thing for the Amiga."

Commodore's multimedia sales manager Kieron Sumner added: "More and more professional users are turning to the Amiga as a uniquely versatile and affordable platform.

"What ACE offers them is a dedicated, knowledgeable base to tailor a complete package to their particular needs."

Premier Vision are at The Foundry, 156 Blackfriars Road, London SE1 8EN. Tel: 071-721 7050.





MIDI sequencing program Music-X has been improved with the addition of new modules aimed at making it easier for musicians to create songs.

Among the new features is a better Amiga Audio Player which gives more than a dozen extra Midi commands and recognises Attack Velocity when playing samples.

A DeFlam module has been added to allow grace notes and finger crushes which occur during recording to be removed without quantizing.

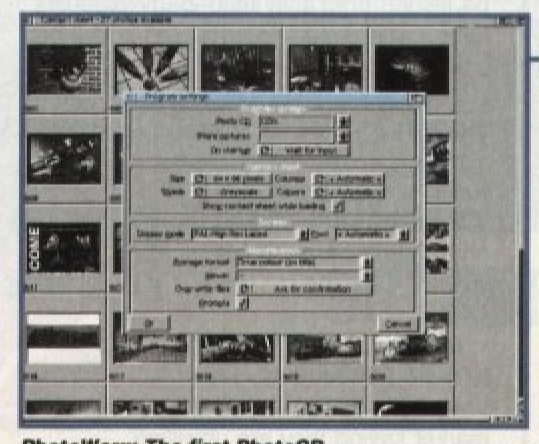
An improved Quantise module aims to allow more accurate selection of what to quantise and has support groups such as Triplets.

And sequences can be printed to a file or disk for editing using the new Print Event List feature.

Version two also comes with Notator-X, a wysiwyg notation publishing program which allows both packages to be run together to transform scores without needing disk access.

The £149.99 software is expected to go on sale during July from The Software Business (0480 496497). Upgrades from earlier versions should be available within the next few weeks.

CD Amigas access PhotoCD



PhotoWorx: The first PhotoCD software for Amigas

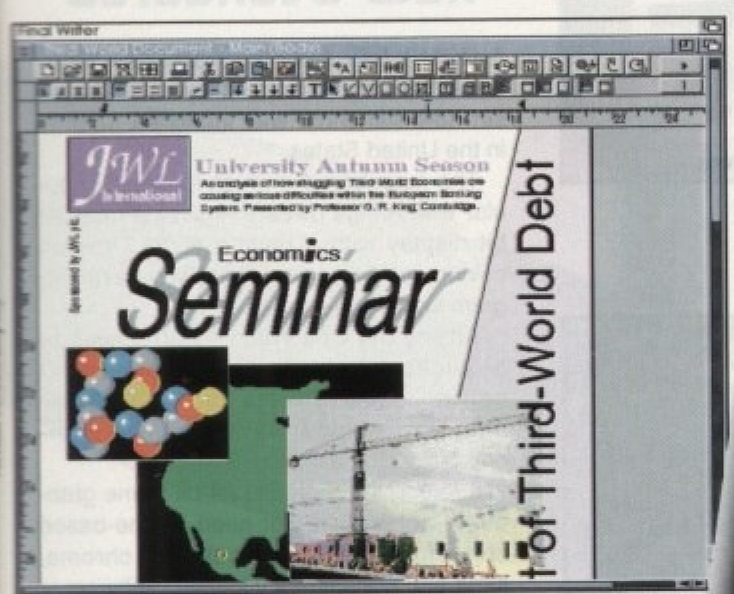
PHOTOWORX is the first Kodak-licensed software to enable Amigas fitted with XA-compatible CD-ROM drives to access Photo CD.

Images are loaded into the computer by the user double-clicking on the mouse and the program has support for all Amiga screen resolutions.

Owners of OpalVision EGS, Picasso, Retina and Piccolo will see the benefit of their graphics boards and there is a range of image processing capabilities.

Pictures can be saved in Amiga IFF file format and output to mono or colour printers. It sells for £89.95 from Blittersoft (0908 220196).

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...or Can You?



Video spectacular heads to Europe

EUROPEANS are now able to use one of the Amiga's most spectacular peripherals – NewTek's Video Toaster.

The system, which manipulates graphics, animation and text with video, has already become popular with television production companies across the United States.

Now, by combining it with Prime Image's Passport 4000 converter, the Video Toaster can be used with Europe's PAL broadcasting system.

Although expensive for everyday Amiga enthusiasts, the device is a cheap alternative for traditional TV and film equipment needed to make top video effects.

The Video Toaster makes it possible for A4000s to perform a number of digital effects to progress from one video scene to the next.

They include video frames which fly out of the screen, poured water, shattered glass and torn page – in addition to the producer being able to create their own.

And animators will be targeted for its sophisticated Lightwave software, which can be used to render and sculpt images.

Commodore's national multimedia sales manager Kieron Sumner said: "Every Amiga user realises the huge potential of the range. The Video Toaster changes potential into reality.

"I'm convinced its availability here will propel the Amiga towards domination of the TV special effects market."

Experts, however, say the conversion lowers the quality too much for it to be used professionally by the European television and film industry.

NewTek, who deny rumours that they are working on a PAL version of Video Toaster, can be telephoned in Kansas, USA on 010 1 913 228 8000 and Prime Image on 010 1 408 867 6519.



Passport 4000: Brings Video Toaster to Europe



CD32: Special Voyage to see £50 price cut

OpalVision promised to set new standards

A COMPLETE OpalVision Desktop Video System which is claimed by its maker to set new standards was launched recently in the United States.

The main board – which is already popular with Amiga owners – gives a true 24-bit display with a palette of 16.7 million colours, and comes with leading paint program OpalPaint.

Adding the OpalVision Video processor provides hundreds of pre-defined 3D digital video effects as well as an unlimited number which can be user-created.

It features a real-time 24-bit frame grabber – which does not need a time-based corrector – and a genlock with chroma, luma and transparency keying. Software is supplied for the creation and editing of digital video effects.

Completing the system, OpalVision Video Suit is an audio and video mixing, switching and transcoding device.

It is a rack-mountable video switcher featuring nine video inputs with Video In and Out available simultaneously in RGB or Y/R-Y/B-Y, Composite and S-Video.

A linear transparency key provides control between two video sources on a pixel-by-pixel basis, and the ten-input audio mixer is software sequenced.

"OpalVision sets new standards for the desktop video industry," claimed OpalVision project technical director Gary Rayner.

"The quality and variety of our digital video effects, the versatility of our switcher and the breadth of our functionality puts OpalVision way ahead of the pack."

The system self-configures for both PAL and NTSC modes and is available in Britain through Indi (0543 419999). The main board costs £349 and each module is priced £899.

Speeding up with German boards

TWO boards designed to boost the speed of the A1200 and A4000 are due for imminent release by Germany-based developer Advanced Systems and Software.

Blizzard 1230-II Turbo Board comes with a 68EC030 processor running at 40MHz, a SCSI-II DMA controller, a battery-backed clock and can be expanded with up to 64Mb of memory.

A high-end version of the board fitted with a 50MHz processor and a memory managing unit will be available for the speed hungry.

The MMU is used by the Amiga in applications such as virtual memory or remapping of the Kickstart operating system to fast RAM instead of using it from slower ROM.

ASS claim their second board will give owners of A4000/030s twice the operating performance of an unaccelerated machine by doubling the processor's speed.

The 40MHz version is expected to cost £250 and the 50MHz model will be priced just under £300. Gordon Harwood are ASS's British distributor and can be telephoned on 0773 836781.

Rombo move

ROMBO, makers of video digitiser Vidi-Amiga, have moved to 2B Young Square, Brucefield Industrial Estate, Livingston EH54 9BX. The new telephone number is 0506 414631.

CD32 price tumbles in summer promotion

CD32 will have its price cut by £50 within the next few weeks, as part of a summer promotion aimed at stimulating sales of the machine.

The move brings Commodore's new Spectacular Voyage pack down to £249 and according to the manufacturer makes the machine the best value games console in the world.

Inside the bundle, the CD32 is accompanied by two software titles, Psygnosis' Microcosm and Renegade's Chaos Engine – and, while stocks last, four games from the Dangerous Streets pack.

Commodore's David Pleasance said: "Amiga CD32 is not just the world's most sophisticated games console – it's also a genuine home entertainment platform.

"At this new price it just obliterates everything else on the market. If you want to buy a console there's simply nothing else worth considering."

68060 heads for Amiga

THE first Amiga accelerator to use Motorola's top-end 68060 processor is promised for release this summer from specialist Advanced Systems and Software.

Cyberstorm 060/50 will use a 50MHz version of the chip which the developer claims will boost the A4000's operating speed from 18 million instructions per second to 70mips.

The £1,200 system will consist of a Cyberstorm Carrier Board fitted with a CPU module and a memory board that can accept up to 128Mb of fast RAM.

A4000 owners who do not need quite as much performance from their computer will be targeted for the £800 Cyberstorm 040/040.

Running a 68040 processor at 40MHz, the board is expected to increase the speed of applications by two and a half times compared to a standard A4000/040.

Both products will have extension capabilities. A cache module which connects to the CPU is promised to give "significant" performance increase.

And a communications module still under development will provide a SCSI-II interface, and Ethernet controller and high speed serial ports.

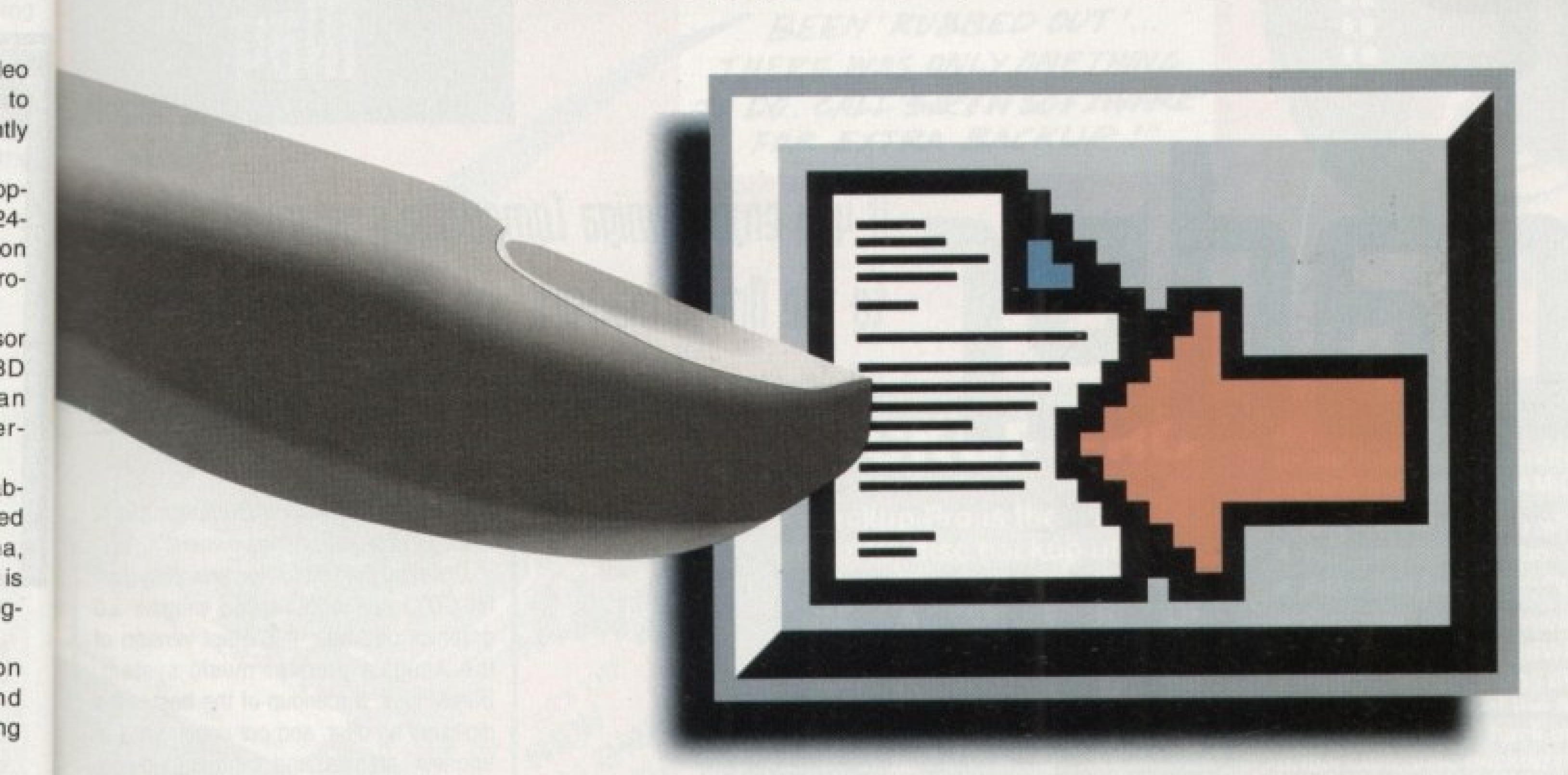
Looking to the future, ASS boss Wolf Dietrich says that Cyberstorm based on a 68060 running at 66MHz should run top-end Amigas at more than 90mips.

Advanced Systems & Software can be telephoned in Germany on 010 49 69 5488130, and their British distributor Gordon Harwood contacted on 0773 836781.

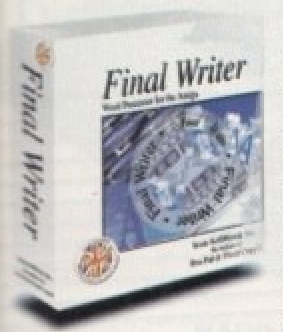
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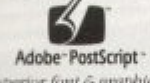
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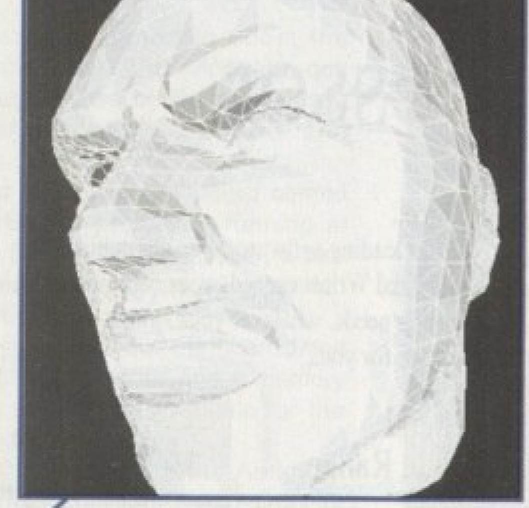
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The broader view

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The Amiga's best music package is now even more powerful than before


It's been a long time coming, but Imagine 3.0 should be well worth the wait

How much do you have to spend to get this sort of quality? All will be revealed in our digitiser roundup



Next month's *Amiga Computing* is a must for all serious Amiga owners!

Covering the first full expansion system for CD32, the long-awaited Imagine 3.0 graphics package, the latest version of the Amiga's premier music system, Bars&Pipes, a roundup of the best video digitisers on offer, and our usual blend of tutorials, articles, and technical advice, we can assure you that your Amiga money will be well spent.

Add to this the hard-hitting System games coverage of Rise of the Robots, King's Quest VI, and Heimdall 2 and you have a package that's hard to beat. Whether your interest is in home office, DTP, video, games, programming, or just messing around, *Amiga Computing* is your only all-round magazine.

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Hard times

With the huge increase in hard drive sales, why is it so many Amiga releases still don't install? Paul Austin puts some old excuses to the sword

Thanks to information supplied during recent surveys it's became obvious that floppy-based Amigas are in decline. According to our research at least 40 per cent of *Amiga Computing's* existing readership are already devoted hard disk users.

Add these existing converts to the battalions of floppy users who intend to upgrade as soon as the cash becomes available and you have a strong argument in favour of installation.

Given these facts, it would appear a strange marketing plan to exclude the hard disk from any imminent software release. Even so, a fairly extensive straw poll of games enthusiasts came up with an estimate that only about 40 per cent of games sold ship with an installation option.

This is even more annoying when you consider that almost every productivity package sold on the machine offers the option to install as standard.

Obviously in certain areas of the games market the situation is very similar, as most graphic adventures and simulations also ship with installers.

In most cases such games usually – and quite rightly – insist on some form of password protection, either in the form of a code-wheel or via the manual. Great, I've got no problem with spending a second or two deciphering the occasional code, so why not extend the procedure to all Amiga games?

In their defence, most software houses would claim that due to the sheer size of such games, installation is almost a prerequisite. In addition, software which fits into this genre usually sells to the more mature games enthusiast who is – in their opinion – less likely to pirate software.

Add to that the complexity of such games and the subsequent dependency on a manual and you have a much more secure platform for sales. All fairly logical argument perhaps, but in my experience a pirate isn't likely to hang up his or her Jolly Roger just because they've turned 25.

This argument is bolstered by the PC market, which is becoming increasingly ravaged by the scourge of software seas, and yet almost every PC program sold offers installation as standard, and when they don't, sales often plummet.

Basically the problem appears be one of perception, Amiga users are obviously seen as potential criminals in the eyes of software developers. But if we're nothing more than computer-based kleptomaniacs, why is it that the Amiga still accounts for 50 per cent of total computer games sales in the UK?

> It's high time that software houses had more confidence in Amiga users

This figure becomes even more impressive when you consider the Amiga is probably outnumbered by the PC by a factor of at least ten to one. I'm not trying to suggest that there isn't a piracy problem on the Amiga – of course there is – but the same is equally true on the PC platform.

This brings us back to the question of protection. If it works for flight sims and so on, why shouldn't the same be true for more conventional games like Desert Strike, and classic sports sims such as Goal or Sensible Soccer – all of which would have benefited immensely from hard drive installation?

The software houses would argue that once a game is installable it invariably becomes easier to pirate. In that case, why not pile on the protection with code wheels which can't be photocopied or whatever it takes?

If it's a matter of people hacking into the code and actually cracking the game, there's little anyone can do except the programmers, and to be honest for such professional pirates installation isn't really a consideration. After all they've been doing the same to floppies for years so what difference will installation make to them?

OK, you may ask what all the fuss is about. If you can't wait a couple of minutes for a game to load, or simply aren't willing to swap the occasional disk, tough! If you can't handle a bit of inconvenience, who cares? Buy a different game or get something similar elsewhere.

It's this last point which worries me more than anything else. If the buying public can't get what they want from the Amiga, why shouldn't they look elsewhere? After all, everything installs on the PC, doesn't it...

If you're not an existing hard drive user this may seem a rather extreme argument but believe me it's not a million miles from reality. Until you've used a hard drive it's hard to appreciate how dependent you become on them.

It's a bit like owning a car – when you've never had one they're just another means of getting from A-to-B, but drag a passing motorist from their cosy little hatchback and swap it for a bus pass and you'll soon discover what a bit of inconvenience can do to people.

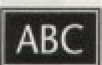
Basically it's high time that software houses had a little more confidence in the people who keep them in their company cars. If not, this paranoia with protection could seriously backfire. Although many would have you believe otherwise, the Amiga market is maturing all the time, and if the software houses don't wake up to the fact that the expectations of the buying public are evolving too, we'll all suffer at the expense of lesser machines.

Paul Austin
Associate Editor

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De-archiving applications - Workbench 2.0 and above

Always boot from your CoverDisk when de-archiving applications. The installer programs can be located via the install icon with the appropriate name in the WB_2&3_Only drawer.

The de-archiving procedure has been much improved and now combines the power of the official Commodore installer program with that of Workbench 2.0 and 3.0.

The installer program is designed to be powerful yet simple for the beginner and features a user-friendly interface allowing you to de-archive programs with a minimum amount of fuss. The installer programs for Workbench 2 and 3 users can be located via the icons named:

```
Install[program name]
```

eg:

```
InstallPFM
```

To run, simply double click on the icon which will load up the installer program.

Using the installer

Ignore the buttons that appear when the installer program boots up and simply click on the Proceed button. The program will then copy the necessary files to RAM.

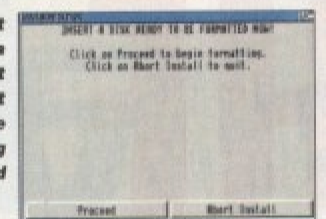
Once this has finished it will inform you that it is about to format a disk in DF0. Click on Proceed, at which point you will be told to insert a blank disk ready for formatting.

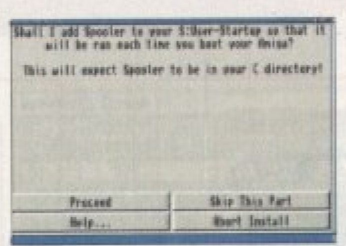
Once you have clicked on Proceed, the installer will indicate that it is formatting the disk in DF0. When this has finished, click on Proceed again to start the de-archiving procedure. When the application has been de-archived you will be told where the de-archived files are. Click once again on Proceed to finish.

If at any time you are unsure as to whether you want to continue installing, you can click on the Abort Install button.

Occasionally, utilities may need to add instructions to your User-Startup file located in the S directory so that they will function correctly. If you want to add the instructions, click on Proceed when prompted.

Don't forget to insert a blank disk at the prompt and before pressing Proceed



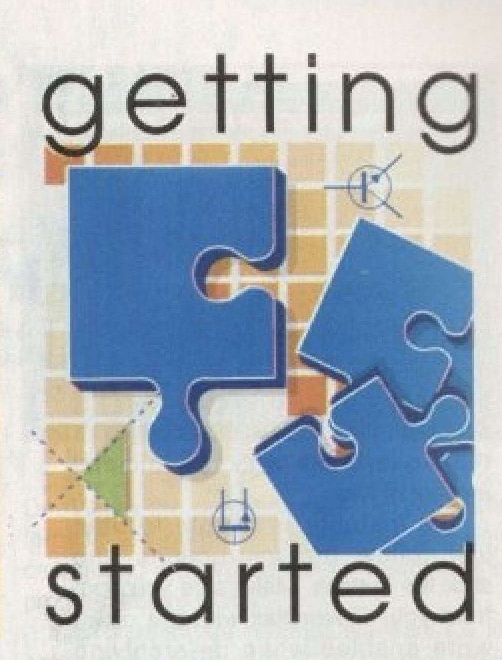


Any commands that need to be added to your User-Startup can be done with the press of a button

Don't worry about the installer options. Simply click on the Proceed button

The Workbench 2.0 and 3.0 installer icon

The Files drawer contains all the utilities set up so that you can use them from the CoverDisk. A Games drawer is also provided so that you can play these immediately. If you want to install the games make sure you copy all the necessary files across as listed in the CoverDisk pages.



The Amiga Computing CoverDisk is designed to be as simple to use as possible. Follow these instructions and you'll be up and running in no time!

We have now managed to fix the problem with AmigaDOS displaying a "disk is write protected" requester when a write-enabled disk is inserted. Just make sure you insert a blank disk when the installer programs tell you – and not before or after.

Installing utilities

The procedure for installing utilities is much the same as installing applications, except that you can boot from your hard drive or Workbench disk. As utilities don't need to be de-archived, you are asked to specify a directory on your hard drive or Workbench disk where you would like to install them.

If you don't want to install to the default directory you can change it by clicking on Change Destination. The Show Drives button will allow you to select a new device and directory. You can create a new drawer for your utility to go in by clicking on the Make New Drawer button and typing in the name.

You can also make a utilities disk by running the MakeUtilitiesDisk1.3 program located in the WB_1.3_only drawer and installing your utilities to here. At times you may be asked if you want to install a utility's documentation. A tick box indicates that the documentation is selected for inclusion, but you can click on the box to ignore it or simply click on the Skip This Part button.

The utility installer programs can be found in the appropriate program drawer in the WB_2&3_Only drawer.

You can easily install documents and create new drawer thanks to the installer's user-friendly interface

De-archiving applications - Workbench 1.3

Always boot from your CoverDisk when de-archiving applications. The installer programs can be located via the install icon with the appropriate name in the WB_1.3_Only drawer.

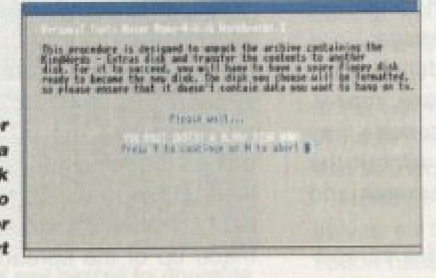
```
Install[program name]_1.3
```

eg:

```
InstallPFM_1.3
```

When you load up the 1.3 installer the program will first prepare itself ready to de-archive the program to a blank disk(s). You will then be asked to insert a disk to be formatted into DF0 and either press y to continue or n to abort.

Provided you answer y, the disk you insert will be formatted and the application de-archived.



After inserting a blank disk press y to continue or "n" to abort

Installing utilities

You should first run the MakeUtilitiesDisk_1.3 to format a blank disk called ACUtilities which will be used to store any utilities you eventually install.

This disk can be used with future CoverDisk utilities until it becomes full. The MakeUtilitiesDisk1.3 program will be a permanent feature of the CoverDisk.

To install any utilities, boot your machine with your CoverDisk inserted in DF0. Utilities can be installed by clicking on their install icon found in the appropriate drawer in the WB_1.3_Only drawer. You cannot specify their destination and any additions to the Startup-Sequence must be done manually.

When installed the utilities are copied to a drawer called ACUtils on the ACUtilities disk.

THE Cover



Take control of your finances

If your finances need a shake up look no further than HiSoft's fully working K-Spread 2 spreadsheet and graph creator, says Steve White

K-Spread 2 is a fully functional spreadsheet that will allow you to keep your finances in check without the hassle of dragging out the calculator and folders crammed with documents.

The program is ready-to-use and all you need to do to load it up is to insert CoverDisk 1 into drive DF0: and reset your Amiga.

The advantages of a spreadsheet program such as K-Spread 2 are many. Spreadsheets offer a clear and concise way of storing financial information without the need to keep hold of bills, statements and transaction papers.

Also, when you have created a spreadsheet you can use it over and over again as all the calculations are performed by your Amiga.

When K-Spread 2 has loaded, double-click on the disk icon. Inside the window you will find the main KSpread program and the graph generator KSpreadG.

Printer is a preferences program that will allow you to specify the type of printer you are using. We have already included EpsonQ, EpsonX, Star24Plus and Star9Plus as these are the most common printer setups. Double-click on the KSpread icon to load up the main program. You will be presented with K-Spread's main display window made up of the spreadsheet cells, the Edit window and the main menus. All spread-

De-archiving your CoverDisk

Workbench 2.0 and 3.0

Users of Workbench later than 1.3 can use the official Commodore installer program which we have especially adapted to de-archive the contents of the CoverDisks with the minimal amount of fuss.

The installer is simple to use; just follow the instructions and click the buttons. Make sure you boot from your CoverDisk with the disk write enabled when de-archiving Personal Fonts Maker and Epoch Master.

When installing Spooler and DTree boot from your Workbench disk or hard drive as the programs are installed onto these disks, although any auto-booting disk will do.

Workbench 1.3

Users with 1.3 machines should double click on the InstallPFM_1.3 to de-archive the Personal Fonts Maker program. We will be working to adapt the Commodore installer so that it works on 1.3 machines in the future.

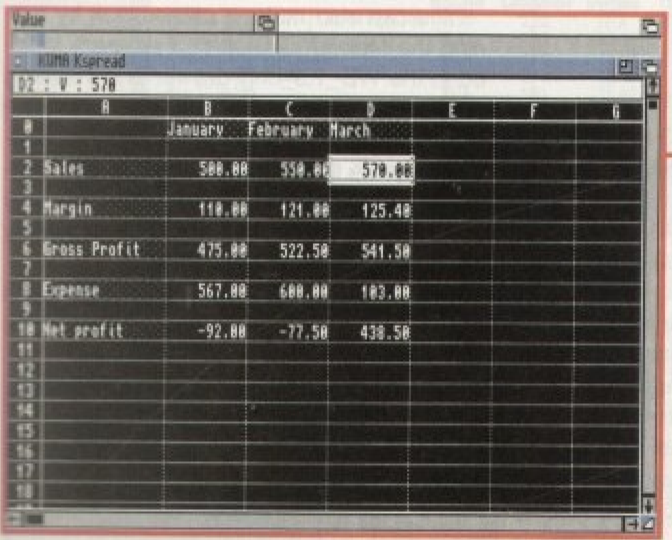
Hard drive installation

Hard drive owners should simply copy the de-archived programs across but will need to make an assign for Personal Fonts Maker to work properly.

Load up Ed then load the startup-sequence file located in the S directory. Just before the LoadWB command type in:

```
Assign PFM: [pathname]
```

Save the startup-sequence by pressing Esc – x and then Return.



When you have finished entering the example spreadsheet it should look similar to this picture

rDisks

sheet applications are made up of cells as they make it far easier for the program to perform calculations. The cells are referenced by letters across the top and numbers down the left-hand side. Therefore, every cell can be quickly referenced - B6, A3 for example.

You will also notice that there are two different cursors on the screen - an outline cursor and a solid cursor. The outlined cursor indicates the cell presently being edited and the solid cursor indicates the copy and paste destination.

Take a look at the small window to the top-left of the screen behind K-Spread 2's main window. This is called the Edit window and it is here that you type in your cell data.

There are four different types of data that can be stored in a cell and these are Value - ordinary numbers, Text - a description, Formula - a formula for calculating the contents of a cell or more, and Label which is used simply as a heading or inside a formula as a reference to a row or column.

You can change the data type in the Edit window by pressing the Tab key. The present data type is displayed in the window title bar. Before we go on to explain the more advanced options in K-Spread 2, let's find out how we can create a basic spreadsheet.

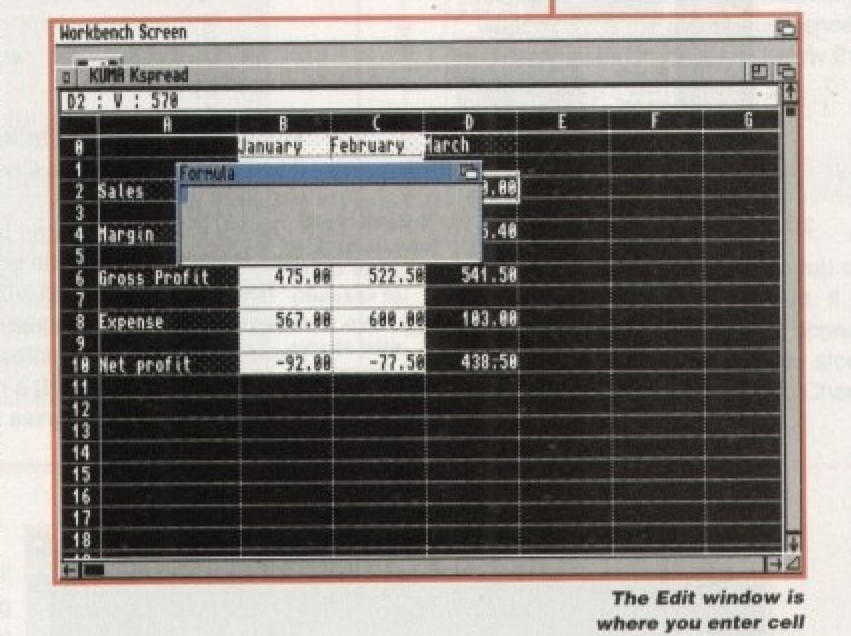
Position the spreadsheet cursor (outlined) on the cell B0 by holding down the Shift key and clicking on it. The Shift key selects the spreadsheet cursor which you can also move with the cursor keys. Alter the data type in the Edit window to Text with the Tab key. Now type in January and press Return. January will appear in cell B0

Move the cursor to C0 and this time enter February. Do the same for cell D0 entering March instead.

Now we need to enter the Row Headers. Hold down the Shift key and click in cell A2. As the Edit window is still in Text mode simply type in Sales and press Return.

Click on A4 and enter Margin, Gross Profit

Cells are easily copied and pasted by dragging them either to the row or column headers



The Edit window is where you enter cell information such as formulae, text and values. The Tab key switches between the data types

in A6, Expense in A8 and Net Profit in A10. You will notice that the text you have entered bleeds across the margin.

To change this click and hold the left mouse button on the right edge line of column A and move it across to the right slightly, so that the text fits into the cells. When you release the button click on This in the requester so that you affect only the A column.

Move to cell B2 and press Tab until you see Value appear in the Edit window. Type in 500 and move the cursor to the next cell to the right. Type in 550 and 570 in the next two cells.

Next select cell B4 and change the data type to Formula. Type in 0.22* then point with the mouse at cell B2 and press the LMB (left mouse button) with the Ctrl key held down. This will add the cell reference B2 to the formula. Press Return.

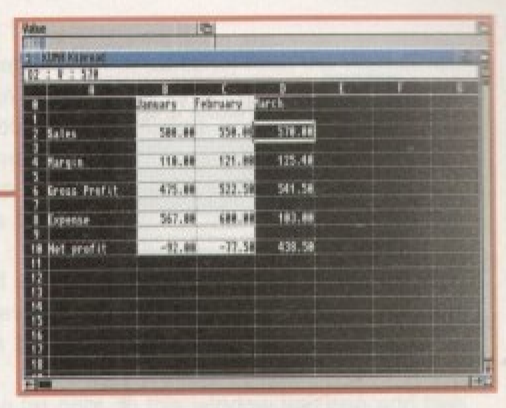
We wish to repeat this formula in each of the cells to which Margin refers, so move the solid cursor over B4 by clicking on it. Release the LMB and then click and hold it down again to select and grab the cell. Drag it across to the row heading 4 edge line until all the cells in that row are highlighted.

When you release the LMB you will be presented with the Row Range requester. Global will copy the selected cell formula across all the cells in the selected row.

Window is defined by the value specified in the Set Slider Range option in the Options Window menu and Cursor will set the limit to that defined by the cursor.

However, we wish to define the range ourselves so type in C:D in the line below the option buttons. This tells K-Spread 2 that we wish to copy the formula across cells C4 and

You can select cells simply by clicking and dragging the mouse. You can only do this with the solid cursor



D4. When the program asks Do you want formula amendment? answer Yes and any changes to the formula will be made by the program automatically.

This is important because we want C4 to contain the formula 0.22*C2 rather than 0.22*B2 and cell D4 to contain the formula 0.22*D2. To complete the entry of data, move the outline cursor to cell B6. This is Gross Profit for January which we define as 0.95*. Point to the cell B4 with the LMB and Ctrl held down so that B4 appears in the formula. Press return to enter the data.

To copy the formula across the other cells in the row select cell B6 by clicking once and then drag the selected cell to the row header, making sure that the remainder of row 6 is highlighted before releasing the mouse button.

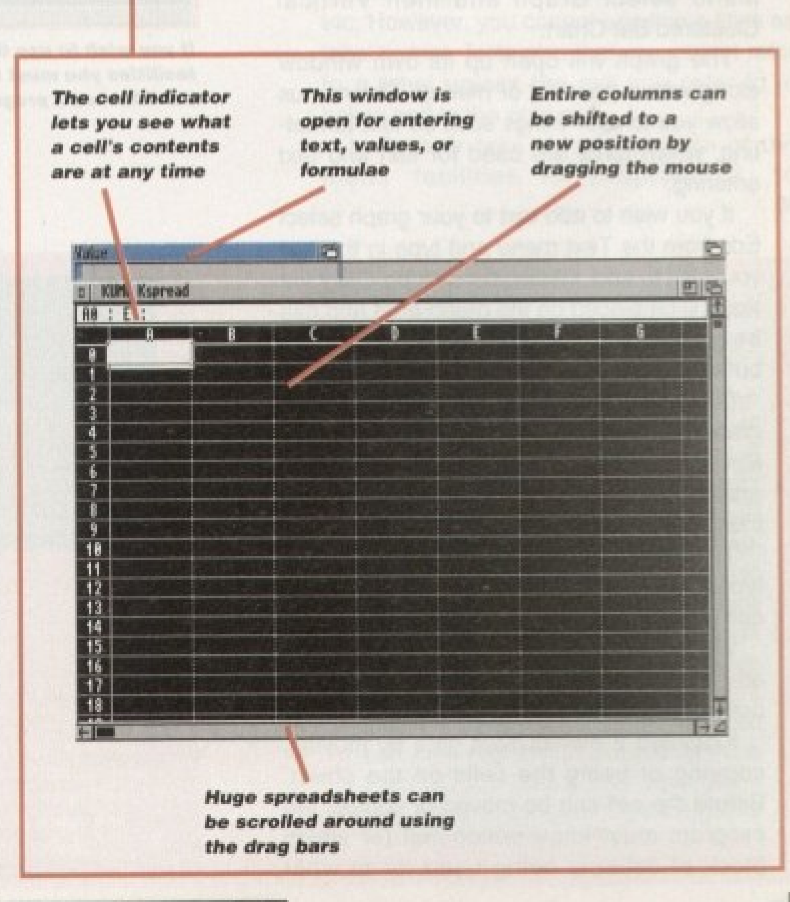
Specify the range as C:D as before and make sure that the answer to Do you want formula amendment is Yes.

Now enter a set of values into row 8, Expense. Remember to select cell B8 and set the data type to Value.

Once the three items of data are entered, move the outline cursor to cell B10. We are now going to define Net Profit to be Gross Profit minus Expense.

Change the data type to Formula, move the mouse pointer to cell B6 and click the ➤

Screen features





LMB and press Ctrl. This will copy B6 into the Edit window formula.

Type a minus sign, move the mouse pointer to the cell B8 and Ctrl click once. You should now have B6-B8 in the Edit window. Press return to fix the cell formula.

Replicate the Net Profit line in the same way as the Gross Profit line by dragging it to the row header. Remember that the range should be C:D.

You have just designed your first spreadsheet using K-Spread 2. You can save this as Example using the Save .SPD Data File options from the Project menu. The .SPD is added by the program so that you know it is a spreadsheet file.

In order to use the graphs you will need to quit K-Spread 2 and load up KSpreadG. From the Project menu load up your Example spreadsheet and highlight the cells from B2 to D10. Do this by clicking on B2 and then, with the LMB held down drag the mouse to D10 and then release.

GRAPHS

We have now selected an area for which we can draw a graph. Selecting text may cause an error to occur. From the Display menu select Graph and then Vertical Clustered Bar Chart.

The graph will open up its own window along with a new set of menus. The menus allow you to alter things such as text formatting, which fonts are used for text and text entering.

If you wish to add text to your graph select Edit from the Text menu and type in the text you wish to add. When you click on Okay the text will be placed on the graph area and can be moved into position with the mouse button.

Once you have finished designing your graph you can then save it down using the Save option from the Project menu. All the graphs are saved as IFF so you can load them into documents and print them out.

Try experimenting with the other graph types. Click on the close window gadget to quit the graph display.

We will now take a look at K-Spread 2's other features which will help you to create powerful spreadsheets.

K-Spread 2 manipulates data by moving, copying or using the cells on the sheet. Before the cell can be moved or copied, the program must know which cell (or which block of cells) is being used, or to what range of cells the block is to be copied.

This is done by selecting the cell or block of cells. This means, for a single cell, a single click on the cell. The cell will be highlighted to indicate selection.

To select a block (a rectangle), or a column or row, position the mouse pointer on one corner, hold down the mouse button and drag the corner diagonally opposite (for a row or column just drag in a straight line). Release the mouse button when the last cell is reached.

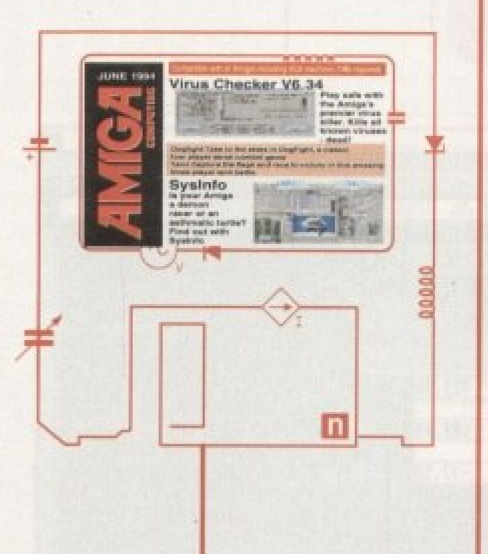
You will see an entire row or column, starting from the current first row or column.

You can copy and replicate cells by following the procedure listed below:

1. Select the source cell by clicking once. It

If you wish to use the graph facilities you must load up the KSpreadG program

Virus Checker v6.34



Author: John Veldthuis

Virus Checker holds the title of the Amiga's premiere virus killer due to its ability to eradicate all known virus programs without intervention from the user.

Workbench 1.3

Workbench 1.3 users should install Virus Checker to their ACUtilities disk before using it.

If you want Virus Checker to be loaded every time you switch on your Amiga you should type in the following command in your startup-sequence:

```
run [path name] Virus_Checker
```

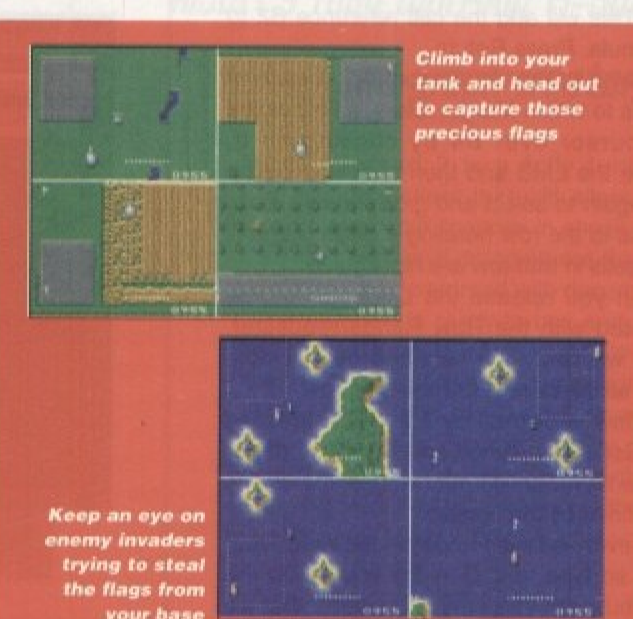
When you load Virus Checker you will be presented with the VC window bar. If you insert a disk Virus Checker will report any found viruses and ask you if you want to destroy it.

By clicking on the menu bar with the left mouse button you can select the menus from the top of the screen by holding down the right mouse button.

These menus contain VC's more intensive virus checks. Link/File scan, Scan memory and Saddam damage scan are independent checks for those particular types of virus infection.

If you insert a disk with a non-AmigaDOS bootblock, Virus Checker will tell you that it cannot recognise the bootblock and that it could be a virus. Select

Tanx - 42º South



Climb into your tank and head out to capture those precious flags

Keep an eye on enemy invaders trying to steal the flags from your base

Like DogFight, Tanx is a multi-player game which involves collecting as many flags as you can and returning them to your base before the time runs out.

Each player controls a tank and must collect flags by either blowing up the enemy and raiding their base or simply driving over the flags that litter the play area. The winner is the player who has collected the most flags.

On loading the game you will be presented with the main options screen which allows you to select which type of game to play and the control method for each player.

There are two types of control method, directional and rotational. Directional moves your tank in the joystick direction. Rotational rotates the tank with either left or right and advances or reverses with the up and down joystick directions.

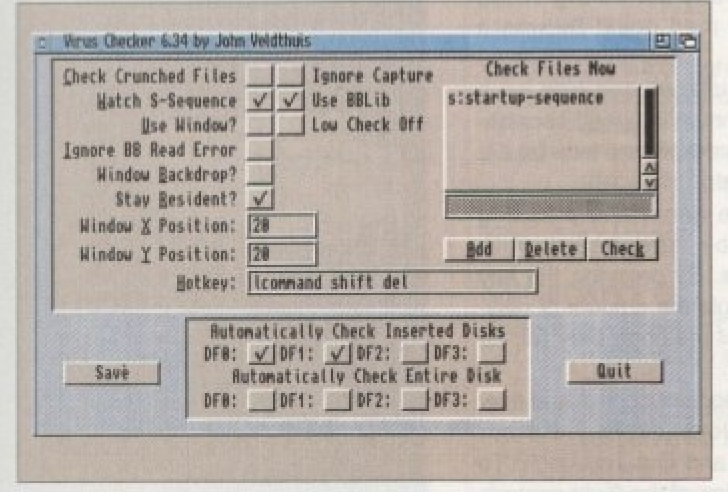
In both cases the fire button launches a shell. Waggling

Ignore from the menu buttons as this is invariably not a virus.

Selecting Remove could damage the disk if it was not intended to be AmigaDOS compatible, such as most games software.

Workbench 2 & 3

Workbench 2 & 3 users can run Virus Checker from the Files drawer on the CoverDisk or you can install it to your Workbench or ACUtilities disk.



Workbench 2 & 3 users can tailor Virus Checker to their own needs with the menu options

For a rundown on the basic operation of Virus Checker read the Workbench 1.3 instructions. Note that you can install Virus Checker to the WBStartup drawer so that it loads every time you boot your Amiga.

By clicking on the re-size window gadget in the Virus Checker bar, Workbench 2 & 3 users can bring up VC's advanced options screen.

There are a multitude of options that you can set here but only a few are important at this moment.

Click the Use Window button off so that the tick disappears. This will stop the Virus Checker bar appearing every time you boot your Amiga. You can always bring the bar back again by using the Exchange Commodity on Workbench.

Take a look at the window on the far right. In this window you can add files for Virus Checker to automatically check when it loads. The most common virus victim is the startup-sequence.

Click on the Add button below the window and then type the following in the requester:

```
s:startup-sequence
```

At the bottom of the window you can select which drive you would like VC to check when disks are inserted. If you had a second drive you would click on the DF1: button so that a tick appears.

Click on the Save button to store your settings and then on the close window gadget to close the Virus Checker bar.

will appear highlighted.

2. Position the mouse pointer on the cell and drag it to the destination cell by holding down the LMB. Release the LMB when the destination cell appears highlighted.

You can also copy cells to entire rows or columns. Before you perform any copying select the source cell – releasing the LMB once the cell has turned black.

Drag the cell to the column header, positioning the source cell image so that the entire row or column turns black. Release the LMB and a requester will appear giving Range options. The Range requester options are explained above.

To insert and delete complete rows or columns, press down the Shift key and click on either a row or column header. A requester will open (Column and Row Edit). This requester asks for the number (Amount) of rows or columns to insert or delete and gives the options of Insert, Delete or Cancel. In Insert mode the rows or columns are inserted before the current row or column. In Delete mode the current row or column and rows or columns to the right or below are deleted.

As mentioned earlier, one of the data types allowed in the Edit window is Labels. A label is text within a formula which is used to reference another cell.

LABELS

Any cell can be designated to be a label by entering some text into it and choosing its data type to be Label (L). Any other cells below and to the right of this cell may then use this label to build up a cell reference.

Let's say we have some column headings of the months January, February etc., with January in cell B0 and a row heading of Sales in cell A2.

To refer to cell B2, which would be Sales for January, in a formula or range, we can either:

1. Refer to the cell as B2 from the keyboard.

2. Click on the cell with the LMB and the Ctrl key.

3. Make the column and row header's data type Label and refer to the cell as January.Sales. Note that a label is case sensitive - the program will not recognise a reference to january or sales.

If there is more than one label of the same name the label which is nearest to the subject cell will be used. When you copy a cell that uses a label, you will be asked if you want to amend the formula to refer to a new column or row label, or not.

If, at any point you delete a label any references to it will be replaced by the corresponding row or column title e.g. A, AE, 34 etc. However, you cannot use these titles as label names. Note also that you cannot refer to a label unless the cell you refer to is below and to the right of it.

Let's now take a look at some of the menu facilities in K-Spread 2. In ➤

the joystick left or right quickly releases a mine. For the full list of controls see fig 1.

The terrain icon to the top-right of the control icons allows you to select the terrain on which the ensuing battle will take place. The default is tanks over land. Clicking on the icon changes it to gunboats patrolling the river ways.

Those options that are crossed out are only available in the registered version of Tanx. Once you are happy with the set-up you should click on the Go icon to begin the game.

The screen is divided into four regions and each region scrolls in accordance with its associated tank or boat.

At the bottom of each region is the status information which displays the amount of flags collected, how many your tank or boat currently holds (only three can be collected at one time) the amount of mines you have remaining and the time left.

Your vehicle can only take three shots before it blows up and you are returned back to base. If you die when you are carrying flags they are released and can be collected by other players.

Each player has four cannons protecting their base and flags. The cannons are controlled by the computer but can be permanently destroyed by enemy fire.

If you are in a battle near your own base with the cannons are firing and they hit you, no damage will be registered.

Your gun is capable of blasting through walls, hedgerows and buildings but keep an eye on the enemy vehicles to check they aren't sneaking up on you.

Keep in mind how many flags you have collected. Three and you should head back to base to store them. Nothing is worse than getting shot and losing your flags, only for them to be picked up by the enemy.

When the time limit has run down the winner will be announced in a celebration of violence. The losing players and their tanks (or boats) will be crushed under your tracks.

Directional Left	advance left
Directional Right	advance right
Directional Up	advance up
Direction Down	advance down
Direction Fire	fire shell
Rotational Left	rotate left
Rotational Right	rotate right
Rotational Up	advance
Rotational Down	reverse
Rotational Fire	fire shell
A & '	advance or reverse
Z & /	reverse or advance down
X & ,	rotate left or advance left
C & .	rotate right or advance right
Left A & Space	fire shell
Left Alt & Right A	drop mine
Esc	quit game
P	pause game

Figure 1

Options/Window menu the Set Slider Range allows you to make the windows sliders operate on any range of cells.

For example, if you set the range B56:BB80 then when you move the window sliders, the cells you can move to will lie within the range B56:BB80.

The Grid option allows the spreadsheet to be displayed with or without the horizontal and vertical lines. This affects the window that is currently active.

Find & Replace offers the facility to find and replace a value or text string. Click in the Find bar to select the contents you want to search for and then in the Repl bar to select what you want to change it to.

You can select which cell type you wish to search and the area in which they will be affected if found.

PRINTING

When you are happy with your spreadsheet you can then print it out for future reference. To print, select either Print Sheet or Print Listing from the Printer menu. Print Sheet allows you to print the required range. Print Listing lists all the cells to the printer.

Below is a list of the printer options that appear when you select one of the above menu options:

PRT: Translated codes sent to the Printer Device selected in Preferences

PAR - Codes sent untranslated to the parallel port

SER - Codes sent untranslated to the serial port

File - Send untranslated to a file, the name of which is entered by the user

Sideways - Sent untranslated to a 100% compatible Epson FX80 or equivalent (which supports downloadable fonts).

Note the printer buffer inside the printer must be disabled. On an FX80 this means setting the DIP switches 1-4 to Off.

Dogfight

Author: Dan Rhodes

DogFight is a classic aerial combat game that first appeared on the VCS in the form of Combat.

Up to four players can participate at one time but only one will survive to be called champion. The game is set during World War I when all that men could fly was a clumsy biplane.

However, these biplanes can turn on a sixpence and have immense speed capabilities. Climb into your cockpit and let's take a flight through DogFight...

On loading up the game and pressing Space you will be presented with the pre-game options. By pressing the key F1 to F4 you can toggle the amount of players and which control methods they will be using.

There are five methods of control and they are Joystick One, Joystick Two, Cursor Keys, Z, X and Shift and Out To Lunch. To gain a better impression of the flight controls and in-game keys take a look at fig 1.

DARING

The basic idea of the game is to shoot down the other players while remaining intact and safely out of harms way. This involves pulling some fairly daring stunts and using the clouds as cover.

Each player begins at his or her airfield ready to take off. You begin with ten lives indicated below each hanger and these deplete as you are hit.

Press the fire button or fire key to start the engines and begin take off. When the biplane has enough speed use the left or right control direction to take off. Don't try and pull up too early otherwise the plane will blow up on the runway.

When off the runway, climb gradually to gain some height and then dive straight down, pulling up at the last moment to gain speed.

If you pull up too steeply the plane will stall (known to DogFight aces as Floating Death) and you will find yourself hurtling back to earth. If this occurs push the nose straight down, wait for the engine to cut back in and quickly push either right or left to recover the stall.

As you improve you will find that you can easily pop off other players while falling - hence the name Floating Death.

Once you're comfortable controlling your

SysInfo

Author: Nic Wilson

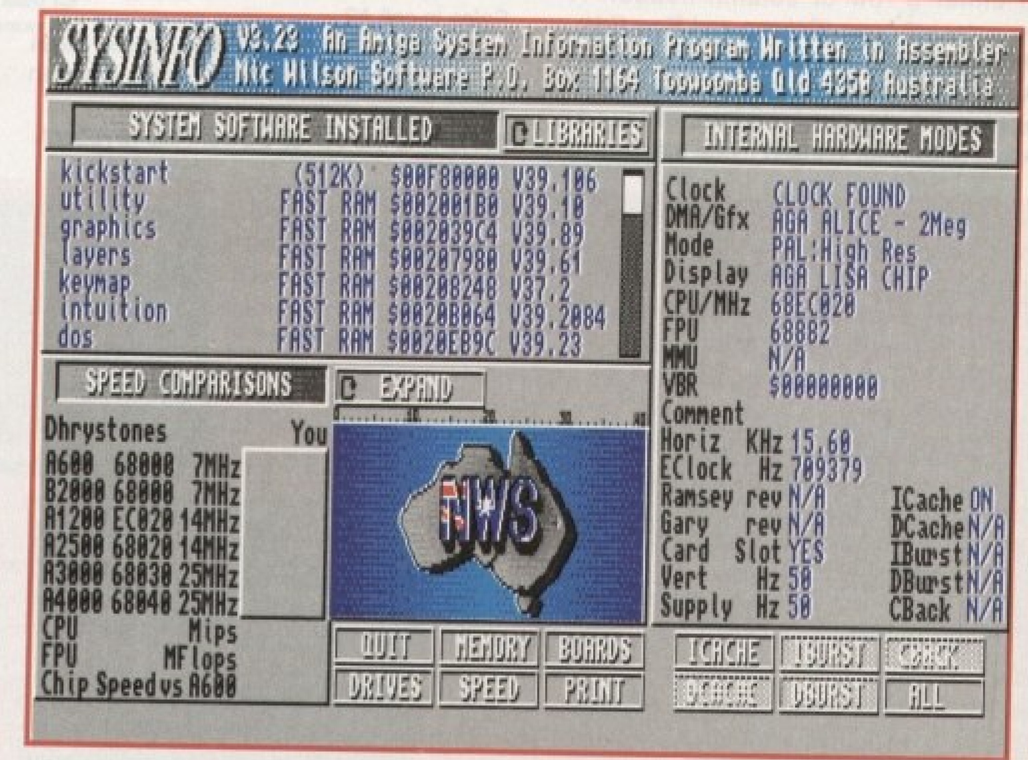
If you ever wondered how fast your Amiga really is SysInfo is the program for you. You can load the program from the Files drawer or install it.

When you load SysInfo it will inform you that it is evaluating your machine after which it will display the main panel.

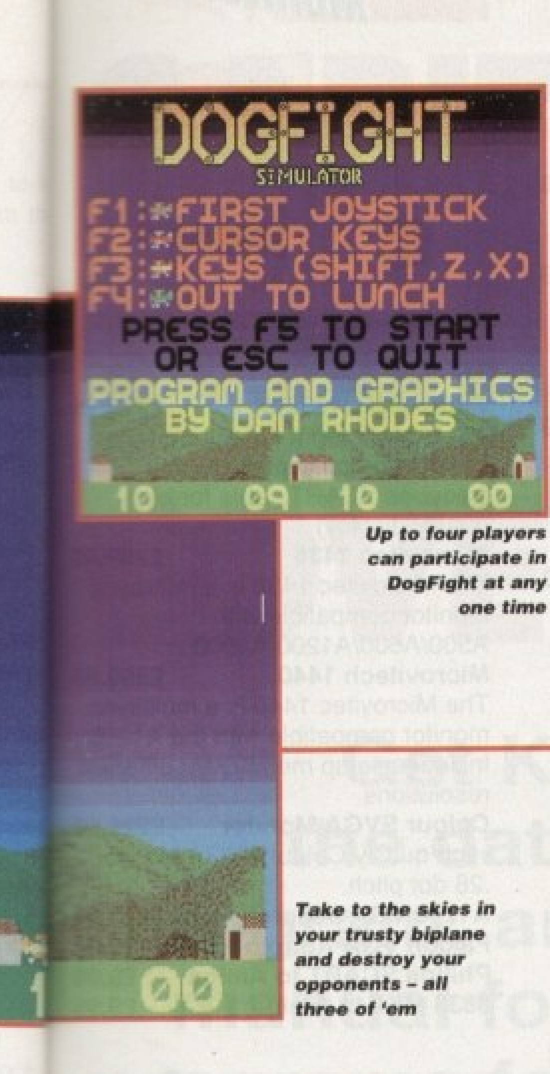
If you look in the Internal Hardware Modes window you will see the hardware information about your Amiga. SysInfo will tell you what CPU you have on board, whether or not an MMU or FPU is present, the speed and a humorous comment about the results from the author.

You can check your Amiga's speed capabilities by clicking on the Speed button. After a few seconds while your speed is compared against other Amigas the results are shown along with a bar chart.

Click on the Expand or Shrink button to enlarge or reduce the bar chart display. As well as the speed of your computer you can also find out information about memory, boards such as RAM expansions and drives. You can even print the result as a permanent record. Just don't start a "my computer's faster than yours" war with the neighbour.



With SysInfo you can see just how fast or slow your Amiga really is



Up to four players can participate in DogFight at any one time

Take to the skies in your trusty biplane and destroy your opponents – all three of 'em

Figure 2

Joystick One
Left – rotate left or right (depends on selected plane)
Right – rotate left or right (depends on selected plane)
Fire – fire cannons

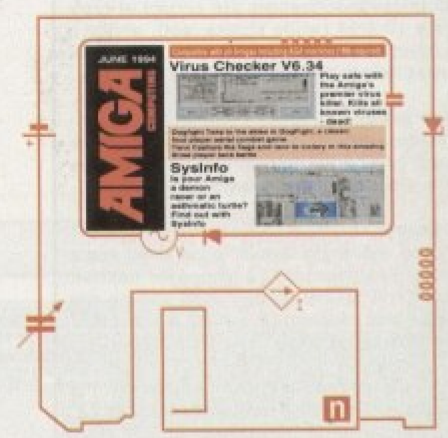
Joystick Two
Left – rotate left or right (depends on selected plane)
Right – rotate left or right (depends on selected plane)
Fire – fire cannons

Cursor Keys
Left arrow – rotate left or right (depends on selected plane)
Right arrow – rotate left or right (depends on selected plane)
Up arrow – fire cannons

Keyboard
Z – rotate left or right (depends on selected plane)
X – rotate left or right (depends on selected plane)
Shift – fire cannons

Out To Lunch select this for any non-players
P – Pause on/off
Q – Quit to options screen
Esc – Quit DogFight





AGA owners

If you own a A1200, or any Amiga equipped with AGA, please select Enhanced from the Boot-up options screen. To get to this screen reset the Amiga and hold down both mouse buttons until it appears.

biplane you can start to create you own attack manoeuvres. The clouds provide excellent coverage and a well executed attack from them can prove devastating to the enemy.

ANNOYING

Strafing planes that are taking off can tip the balance in your favour but it does prove annoying to the other players and you may find yourself under attack from everyone else playing.

Avoid spinning dogfights because you are more likely to crash into your opponent than shoot him down. If you do get into such a fight dive away at the best moment and try and entice your opponent into the ground.

Beware of wrapping bullets. If you fire across the screen and then turn and re-enter on the other side you may find yourself being shot down by your own bullet – a waste of a life and very embarrassing.

The last player remaining is considered the victor. If there are two players and they shoot each other at the same time (it can happen) then the game will be declared a draw.

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Please make sure that you list ALL library and other files necessary for the program to work. Feel free to design your own icons for programs that run from Workbench, but please don't make them too big.

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We are prepared to pay our current rates for original work which has not been distributed in any other way and which has not been put in the public domain.

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Your submission MUST be accompanied by the submissions form, a copy of it, or a signed declaration to the same effect. Please supply your full name, address and phone number.

Unfortunately we cannot undertake to return disks sent to us as the volume of submissions makes this an impractical exercise.

Post your submissions WITH A COPY OF THIS FORM to: Steve White, Amiga Computing, CoverDisk Submissions, Europa House, Adlington Park, Macclesfield SK10 4NP.

Name .... Age ....
Address ....
....
Daytime phone .... Evening phone ....
Submission name .... Submission size ....
Type of program: ☐ Game ☐ Utility ☐ Other ....

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*DPIII needs 2MB for animation on HD [...]

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Paul Austin charts the Amiga's position in the new order as the media worlds collide

The

During a misspent youth among other aspiring musicians, a conversation broke out revolving around the future of the music business. In a fit of exuberance I immediately adopted the technological banner, only to find myself instantly in a minority of one.

Undaunted, I stated my case: "In ten years time everything will be run by Midi, and what's left over will be nothing more than a series of ones and zeros on a giant hard drive."

Believe me, this wasn't a popular theory in a roomful of musical die-hards determined to "keep music live" no matter what the cost. At the time hard drives were still very much a rarity, while Midi was nothing more than a blasphemous four-letter word more often used as an insult than an option.

Gigging musicians are notorious technophobes and on the whole wouldn't – at the time – touch a computer with a Stylophone. As a result things soon got fairly heated as the enemy circled the wagons around the analogue flag.

Fortunately the conversation eventually turned to the usual obsessions of young men and my seemingly hysterical opinions were soon put down to a dodgy pint.

As it turned out my estimate was conservative to say the least. Now just five years latter the digital age is definitely upon us, and in almost every walk of life analogue is in terminal decline.

Albums have been crushed underfoot by CD, cassettes are at the mercy of DAT and even video is evolving into a digital medium with FMV CDs and direct-to-disk digital video recording.

All fairly predictable; after all, you can't stop progress. However the really interesting point isn't the change in format, it's the fact that all these elements are no longer the islands they once were.

> In ten years time everything will be run by Midi, and what's left over will be nothing more than a series of ones and zeros on a giant hard drive

Audio is becoming ever more synonymous with video, and information in general is inexorably making the difference between the haves and the have-nots in science, industry, economics and education.

If information is indeed power, what part can the Amiga play as worlds collide? After all, what can a jumped-up games machine offer that the PCs and Macs can't match?

In my opinion the clue lies in the Amiga's humble beginnings. Unlike the opposition it has evolved over the years while the others have, for the most part, rested on their corporate laurels.

Take the PC – although it's been the staple diet of the business community for over 20 years, its basic architecture has never changed. It's true that power PCs in the 486 and Pentium bracket have become much faster, but essentially they're still dinosaurs in disguise.

No matter how quick they become, PCs will never multitask, and certainly won't suddenly develop the natural affinity with video that the Amiga has enjoyed since day one.

DORMANT

It's true that more than one program can be loaded into a PC, but only one can ever running. The others simply sit dormant in the background – not exactly the perfect multimedia approach.

The same is true for Macintoshes; just like PCs they can load multiple packages, but again only one is ever active. Obviously the Mac is a more worthy challenger courtesy of its idiot-proof point and click interface and existing kudos in the media – extensively in publishing.

However, no matter how glossy the brochure, a Mac simply isn't a multimedia machine. That particular mantle is exclusively the property of the Amiga.

At this point you're probably resigning yourself to a few pages of biased, and probably unsubstantiated twaddle from a self-confessed Amiga fan. As little as a year ago I'd probably would have agreed wholeheart-

The optical option

Without doubt one of the biggest stumbling blocks for computing in general has been the incompatibility between the various machines and their operating systems.

It's true that things have improved over the last couple of years with Commodore finally embracing PC disks as a transfer option.

As a result the two machines can now enjoy fairly uninhibited communication – as indeed can the Mac – courtesy of its ability to read both double and high-density PC disks.

Unfortunately although a big improvement, floppies are becoming ever more inadequate due to the pure volume of data which needs to be transferred. A classic example is ray-traced animation, which has been saved out in a 24-bit format before to single frame recording.

In such circumstances, floppies are almost useless. As a result some form of mass media transfer is essential.

In the past the SyQuest removable hard disk was the only answer, although this has been challenged recently with the arrival of various optical drives – the most successful being the 128Mb 3.5in variety.

Unfortunately both these systems rely on an identical drive mechanism and more importantly an OS-compatible machine at the destination.

Fortunately these barriers are finally coming down with the arrival of the Mo-Miga optical disk drive – see separate review. Not only does it provide double the normal storage of a 5.25in optical by delivering a staggering 1.2 gigabytes per disk, but it also offers totally transparent transfer between Mac, Amiga PC and even Unix.



The excellent Mo-Miga drive breaking down the barriers in OS communications

Obviously any transfers require the actual drive unit, but the disks themselves simply appear as normal DOS volume regardless of the machine using them.

Not surprisingly, the actual file format has to be supported by the source and destination machines, but that's about it. As a result you can transfer data to just about any system so it's even possible to communicate with Silicon Graphics Indigos when necessary.

As you've probably guessed, Mo-Miga uses its own proprietary file system to achieve compatibility between platforms. With this in mind you'd expect the actual transfer time to be fairly slow, but surprisingly they're pretty quick and can sustain 2Mb per second stretching up to 5Mb in burst mode.

Unfortunately 2Mb per second is still too slow for existing digital video systems, the PAR included. However it's more than adequate for most applications – including the AD516 and other direct-to-disk samplers.

...digital highway



Caption required

edly, as there was no real reason to expect any serious corporate interest.

After all, no matter how good the machine, nothing sells into the corporate market without the proper exposure, and in that particular department the Amiga has always been disastrous.

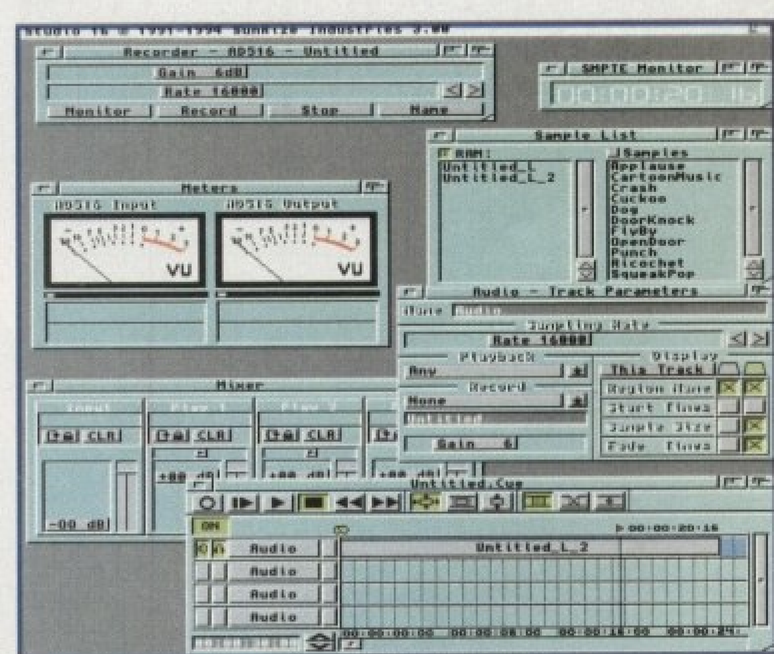
However over recent months the machine has finally begun to received the serious attention it deserves. As you may recall from the last issue, Commodore – along with a number of third-party developers – have established the ACE initiative.

Admittedly it's still early days with only one Amiga Centre of Excellence established. However with another five set to spread the Amiga's corporate message across the UK, the potential is there.

Add ACE to the sterling efforts of independents such as Premier Vision – a company responsible for hosting regular seminars which introduce the best in Amiga technology to professional markets – and the future looks brighter than ever.

Although the basic Amiga has obvious benefits as a potential multimedia workstation, the machine itself is only the beginning. It's really the third-party peripherals that lead the charge, and if sold correctly they could make the machine the crossroads at which all the digital highways converge.

Before moving on to the tools of the trade, it's probably worth clarifying what makes up this almost mythical digital ether.



The new drag-and-drop approach of Studio 16 3.0 makes multimedia easier

The most obvious example is email. As you're probably well aware this can take many forms, with perhaps the most egalitarian example being the Internet.

Unlike many comms systems, the Internet isn't a BBS, in fact it's much more akin to a peer-to-peer local area network which you may already use at work. However in the case of the Internet the network is on a truly massive scale.

Aside from offering direct connections to thousands of research facilities, universities and companies, it also offers links to 110

Digital video

Above all else, the Amiga is best known as a videographic tool, mainly due to its natural affinity with video and its ability to generate a sync – a factor which has made it the ideal choice for genlocking, titling and computer-generated animation destined for tape.

Thanks to these basic skills and the artistic nature of the machine, some of the best animation and ray-tracing software available on any platform has emerged on the Amiga. However although capable of generating astonishing graphics it has always suffered when it came to recording.

In the past the only option was to invest in an SP edit recorder capable of recording frames individually. Unfortunately this had two major drawbacks.

Firstly such a machine retails at around £5,500 and worse still a punishing schedule of single frame recording invariably means hundreds of pounds a year simply to maintain the tape heads.

Fortunately the dark ages are at last coming to an end with the arrival of dedicated digital video recording. At present there are at least three systems in the final stages of development, two of which will be on sale by the time you read this article. At the forefront of the clamour to capture this massively lucrative market is the much publicised Personal Animation Recorder – alias PAR – from Digital Processing Systems.

Although initially designed as a simple replacement for single frame recording the PAR – like the Amiga – has evolved into something of a monster.

In addition to simply compiling single frames into 24-bit Jpeg animation the system can also digitise live video – again in real-time – using the AD3000 TBC/digitising card. As if that wasn't impressive enough, 16-bit audio has also been added via the AD516 direct-to-disk sampling system. As a result, the PAR, AD3000 and AD516 combo builds into the first truly broadcast quality audio/video system to appear on any desktop platform.

Although it's hard to believe that such power can emanate from a single machine, I can confirm it works perfectly – see the Personal Animation Recorder review for more information.

Although at this point in the issue I can't confirm further expansion possibilities (again, see the Personal Animation Recorder review) the AD516's natural affinity with Bars & Pipes Pro 2 could well allow additional hardware and software such as Scala to become yet another element in a PAR audio/video setup.

As you may already be aware, B&PPro2 can be much more than a straightforward Midi sequencer. In fact, courtesy of its Media Madness module, any Midi sequence can be used to trigger both external hardware and additional software.

Thanks to the SMPTE timecode generated by the AD516, it's theoretically possible for all the element to share a common timing reference and sequence their efforts accordingly, making the Amiga the heart of the most powerful multimedia system on any platform.

countries and an estimated user base of over ten million.

In terms of data transfer the figures are quite literally mind-boggling, with an average of ten terabytes of information being shunted around the world every month. Add to that 4,600 news groups and over 130 gigabytes of PD and you're looking at a real monster.

Initiated in 1969, and still subsidised, by the US Federal government, it's rapidly realising vice-president Al Gore's dream of a "data super-highway".

Obviously the Internet isn't the only comms option, and in fact there's a whole host of networks such as CompuServe and CIX which offer similar global access, sometimes in combination with the Internet, but all from the comfort of an intuitive menu-driven front end.

As you can imagine the global village – alias big brother – has big advantages, not least of which is the ability to side-step compatibility problems between various operating systems.

TRANSFORMATION

Assuming you can read a particular file format – not usually a problem on the Amiga – literally anything can be transferred, regardless of size and all in a matter of minutes.

Another imminent link in the evolutionary chain is the arrival of optical fibre as the standard in telecommunications. Once in place, video conferencing could well supersede or at very least transform email as we know it.

Again, the Amiga has a headstart in such an environment courtesy of its affinity with video and the profusion of cards such as the IV24 and FrameMachine which already support PIP – picture in picture – displays.

Add a camera and some additional connections to this existing technology and the Amiga is in the perfect position to jump on the fibre-optic bandwagon. Although still a few years away from general use, BT are already shipping videophones and video conferencing equipment – the times they are a changing...



With the PAR card the Amiga is becoming the most powerful video tool on any platform

Although much of the above has dealt with the potential of the Amiga, the future is already at hand courtesy of products such as GVP's PhonePak.

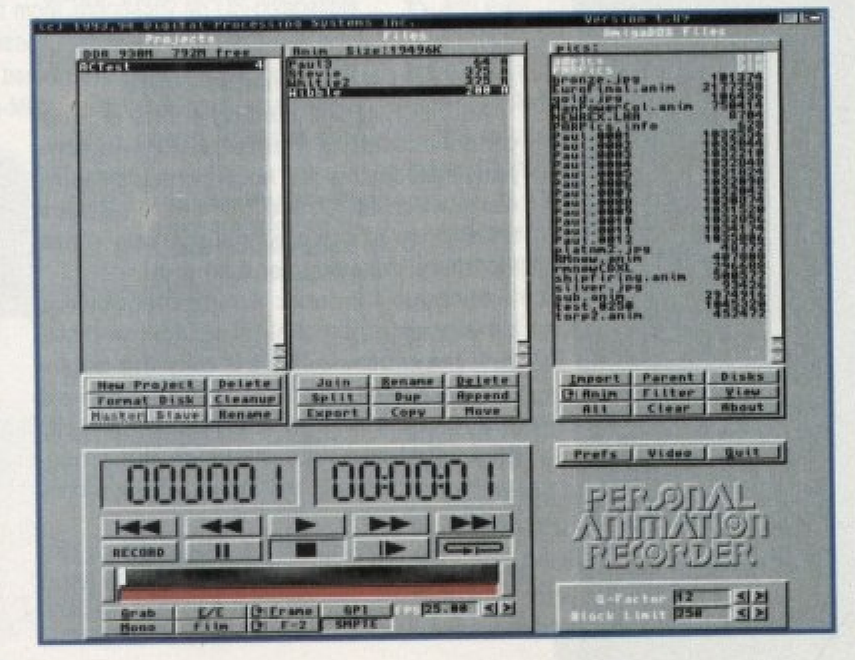
As the name suggests, this is a dedicated telecommunications card which provides message redirection: "Press 1 for customer services, press 2 for sales and distribution", and so on.

You can also use a similar pre-recorded approach to specify what kind of communication you wish to make: "Press 3 to leave voice mail, press 4 to send a fax...".

It's also possible to add time/date stamps to incoming messages and set up scheduled transmissions for your own faxes, thereby avoiding the expense of peak rate calls.

When employed as a network server you can also set up private mail areas. It's even possible to specify that the number of an incoming fax

The impressive AD3000 capture card, real-time grabbing and a TBC to boot!



Simple but efficient. The PAR interface in action

should be interrogated and if necessary ignored, thereby avoiding junk faxes – something which is already a serious problem in the States.

However, PhonePak is by no means the only telecommunication option on the Amiga. Like video cards, the variety of fax modems is growing almost by the day with companies like Supra leading the field with combined fax modems that ship with proprietary software

Like GVP's PhonePak, they can schedule fax transmissions as well as automatically detect incoming fax information – and of course they can still operate just like a normal modem when you feel the urge to get on-line.

The only obvious limitation of fax modems is the lack of voice mail and call re-direction – but to be honest if you already have an answer phone and don't operate as part of a network it's not really a problem.

Combine the potential of comms and the Amiga's existing multimedia skill and yet more promise is revealed. Existing Amiga software such as InfoChannel can already update satellite information centres and point-of-sale sites from a central control machine.

Because the Amiga offers true multitasking , changes can be made regardless of whether a presentation is already running

As a result a single operator can update an infinite number of machines simply by dialling direct into the satellites to automatically replace or update existing presentations, add new ones, alter display times or download new pages.

And of course, because the Amiga offers true multitasking, changes can be made regardless of whether a presentation is already running.

As you'll discover in the digital video section, the possibilities offered by recent innovations are finally providing the pro hardware platform that the Amiga has been building towards for the last few years.

Although excellent software has been around for some time, use of the Amiga in a broadcast environment has always suffered from the limitations of mass data transfer – single frame recording being a classic example – combined with communication difficulties between other machines (see The optical options).

Fortunately even these sticky problems are now resolved, and all that remains is the perennial problem of speed. Although the Amiga is just as fast as a 486 PC or Mac Quadra, it's still pretty slow in comparison to dedicated graphics workstations.

However, this stumbling block could soon be removed with the imminent arrival of at least four 4000/040 accelerators, the Warp transputer, and a planned 060 from Advanced Software Systems, which if claims are correct will easily provide workstation performance on the only true multimedia machine.



Fast fibres

The unsung hero of the information explosion is the fibre-optic cable. These cables are capable of carrying 565 megabits (70Mb) of information every second in the form of laser pulses, and it is this huge increase in transmission speeds which will make most new digital services possible.

British Telecom have already laid 1.5m km of fibre optic cable, almost all of it to businesses. There is little impetus for the company to use the cables on domestic lines because apart from the cost of the operation; BT are forbidden from providing home entertainment services until the year 2001, although they are already looking at a video-on-demand service.

By that time, the plan is to have fibre-optic supplied to every business using more than five phone lines. As the next generation of cables should transmit two gigabits per second, the possibilities for teleworking and home entertainment are almost endless.

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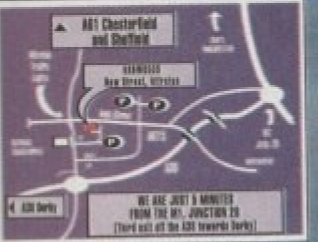
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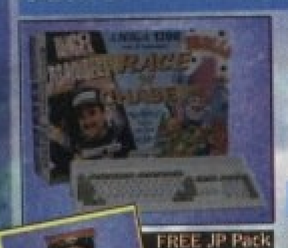
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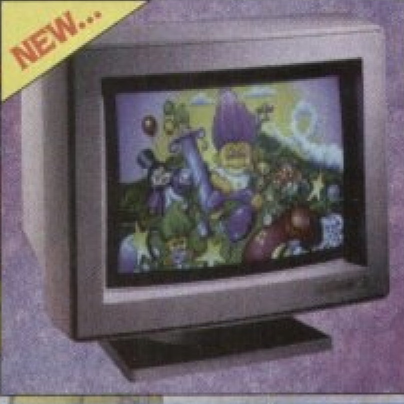


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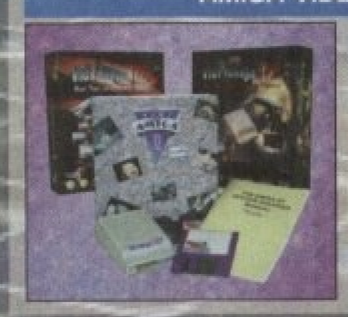
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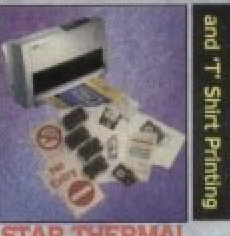
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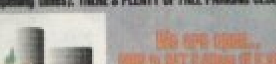
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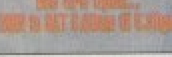
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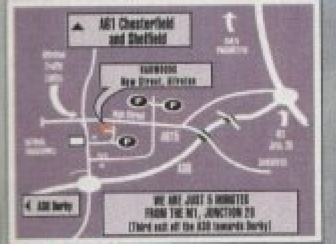


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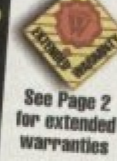
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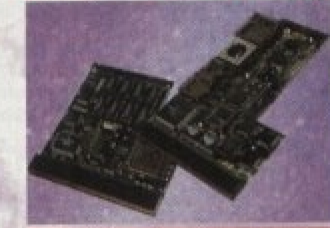
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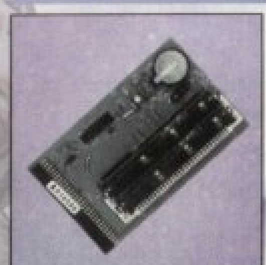
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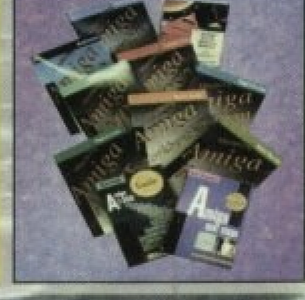
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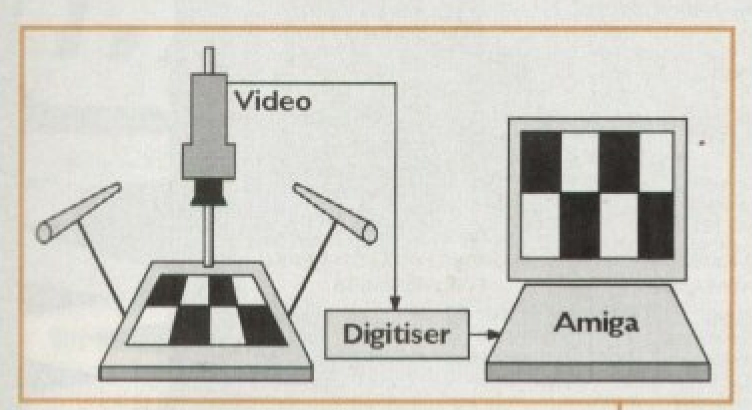
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Connecting a digitiser and video source to your Amiga is actually quite straightforward

Digitiser uses

Video digitisers have many uses, including grabbing stills for use in animations, graphics or titles, or to incorporate into desktop publishing projects.

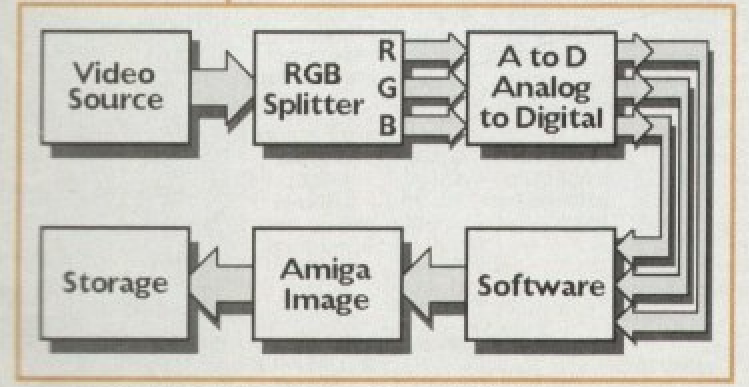
With the right kind of digitiser entire sequences can be grabbed and subsequently animated to provide video clips which could be used in games, CD-ROMS, interactive presentations or desktop video presentations. Digitised images can be used as the basis for morphing sequences.

Video clips can even be used as a basis for hand-drawn animations through a process called rotoscoping, where each frame of a sequence is redrawn from the original grab to give a new style or dimension to a character while still retaining its natural movement.

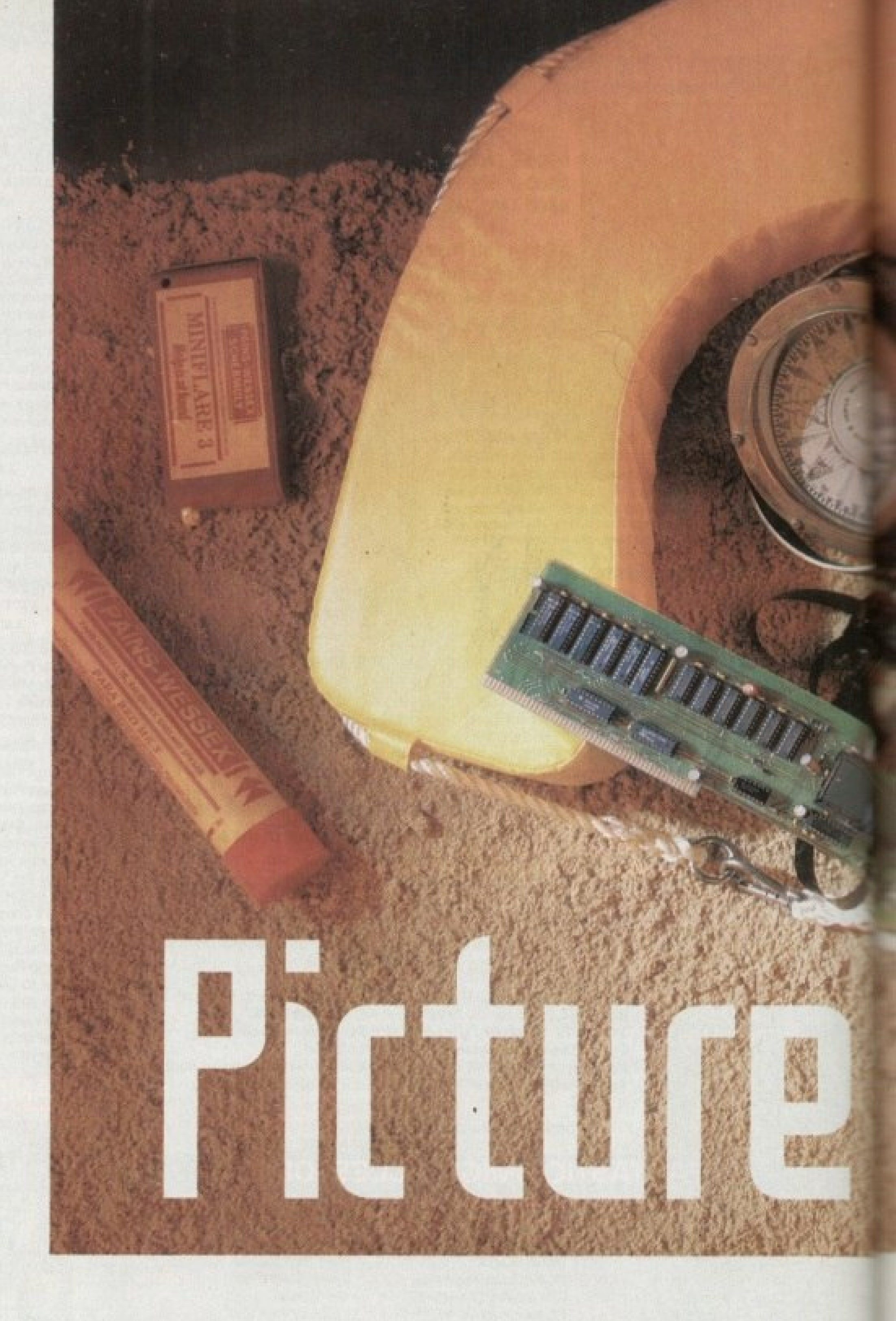
Even traditional cel animators can make use of digitising, grabbing each individual frame under a rostrum camera and then using the Amiga to play the sequence back.

This is especially useful when "line-testing" – that is checking that the line drawings which will be used to produce the finished, coloured, cels all animate smoothly together.

And of course there's the digitised porn that today's school-kids are reputed to be swapping in the playground. How do you think that gets on to disk? Yes, that's right – it's digitised!



Here's a typical capture and conversion path that a video signal will take during the digitising process



Picture

Gary Whiteley looks at what is needed to get real pictures into your Amiga, and what to do with them once they're there

For almost as long as the Amiga family of computers has been in existence, video digitisers have been available for them. The trailblazer was NewTek's compact, direct-to-your-Amiga DigiView – reputedly designed and built in a garage by Tim Jenison, the man who later led his own desktop video revolution with the famous Video Toaster.

But every dog has its day and increasingly powerful digitisers incorporating more and more features have since supplanted DigiView to help Amiga owners exploit their artistic and creative talents and make capturing images from video a piece of cake.

Today there are over a dozen different Amiga digitisers on the market, including those which are integrated into other hardware, such as NewTek's Video Toaster or Digital Creation's DCTV. This month's Survivors' Guide takes a look at the technology, types and uses of video digitisers, and offers a few hints and tips on getting the best from them, as well as a mini round-up of some top digitiser buys.

Broadly speaking, a digitiser is a piece of hardware which attaches to a computer to enable external data to be first sampled and then converted into information which the computer can understand and utilise.

GRABBERS

Sound samplers are also digitisers, but in this article we're going to concentrate on video digitisers – sometimes known as frame grabbers.

Unlike flatbed or hand scanners, which are used to capture images from paper or thin films (such a transparencies), video

Survivors' guide to DIGITISERS

perfect

digitisers need to be fed a video signal – usually composite or YC – to do their magic. But, as with scanners, the quality of the output reflects the quality of the input; the old maxim of garbage in, garbage out applies to digitising as much anything else.

SPLIT

The video signal may be a still from a camera or VCR or a live, moving image, depending whether the digitiser used is a slow or fast scan model. This analogue signal is then electronically split into its three colour components – red, green and blue (RGB) – before being converted into digital data which can be sent to the Amiga.

Almost all external digitisers transfer this data to the Amiga via the parallel port. Internal digitisers communicate directly to the computer hardware. Once transferred, the digitising software can then instruct the Amiga to recombine the digital RGB data into an image which can be viewed on screen, either in a native Amiga format such as IFF or – if a suitable display card is fitted – it may be possible to see a full-colour, 24-bit version (though this largely depends on the digitiser's software as well as the display card). There are a couple of digitising variations which need explaining. I've already mentioned slow and fast scan digitisers, but what exactly are they? Well, there's certainly a clue in the names!

Slow scan digitisers grab and convert the incoming video signal (let's think of it as a single, full-screen image) in small chunks and the whole process can take from several seconds to over a minute, depending on the Amiga, the digitiser, and the grabbing resolution.

STATIC

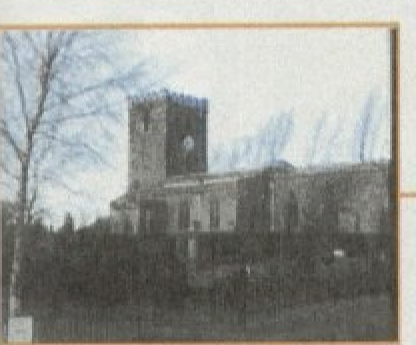
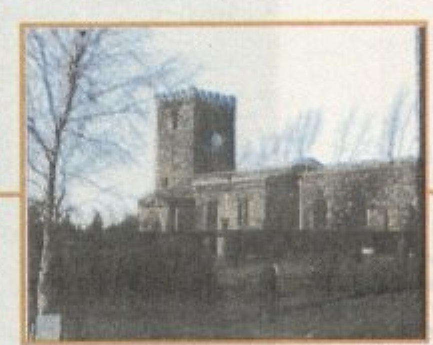
Since the grabbing takes time, it is essential that the image remains absolutely static during the entire operation, otherwise blurring or image break-up could easily happen.

This can easily be achieved with a well-mounted camera, but digitising from video-

Hints and tips

There are several simple measures which you can take to improve the quality of your digitised images. The first three apply only when grabbing from a video camera.

- Ensure that the digitising subject is evenly and adequately lit by using portable lighting, such as Anglepoise lamps or fluorescent strips or by reflecting daylight onto the subject using sheets of white paper or polystyrene sheeting. Obviously there's little you can do if your subject is outdoors but wait for the natural light to improve – unless you have suitable lighting, of course.
- Don't forget to White Balance your camera to get the truest colour representation. This is particularly important when using artificial, or mixed natural and artificial, light sources.
- Use a stable camera mounting, particularly when the digitiser is a slow scan model. A tripod, copy stand or simply placing the camera on a solid base will help enormously in removing any unwanted motion blurring which might otherwise mar the digitised image.
- When digitising from videotape with a slow scan digitiser it is essential to use a VCR which has a perfect freeze-frame facility, otherwise the resulting image will almost certainly exhibit tearing or other artefacts caused by any slight movement which might happen when the tape is paused at the required point.
- Use good quality tapes and keep your video deck in top working order, taking particular care to keep its heads clean. Where possible (ie if your VCR and digitiser can handle it) use YC signals instead of regular composite ones, as these will give significantly increased digitising quality.



Four common grab formats – 16 colour hi-res, HAM interlace, 256-colour AGA and 24-bit. The first two images are dithered so as to appear to contain more colours

tape requires that the source VCR has a rock-solid freeze-frame facility.

Fast scan digitisers contain a frame buffer – a dedicated memory area – which is used to continually sample the incoming video, frame by frame.

When the digitising process is triggered the video frame currently stored in the frame buffer is frozen and held as long as required. Consequently, the captured frame can be digitised very quickly because the video picture is already stored in the frame buffer.

However, even these real-time digitisers cannot capture continuous sequences of video frames in real-time because of the data transfer rates required, so I prefer the term "fast scan" to "real-time".

SLOWER

Also, it still takes time to convert the grabbed image into a format which can be viewed or stored by the Amiga, especially where the Amiga has a slower processor, such as a standard 68000 chip.

The greatest advantage of fast scan digitisers is that they can easily grab images from moving video without suffering the blurring or break-up associated with slow scan models.

Occasionally though, some motion jitter may be evident in a displayed image because of marked differences between the two interlaced fields which make up the complete video frame and it may thus be necessary to de-interlace the image to remove the jitter (and, as a consequence, lose some of the contained picture information). But this is a small price to pay for the ultimate convenience of fast scan grabbing.

> "The slow scan digitisers are much cheaper, but lack the finesse of the fast scan models"

Three of the best

If you're in the market for a digitiser then here are three which provide both good value and top-quality grabbing into the bargain.

Vidi Amiga 12 • Rombo Productions

A slow scan digitiser priced at well under £100, the Vidi 12 is an external model which connects to the Amiga's parallel port and draws its power from the disk drive port. Grab quality is very impressive at the price and the unit is easy to set up and use.

With both Y/C and composite inputs Vidi 12 should satisfy the needs of most hobbyists – and even some professional applications. AGA Amigas are fully supported and there's a black and white preview screen to let you see the images you want to capture.

Requires at least 1Mb of memory and works with all Amigas (some models may need a gender changer or extension cable).

Vidi-Amiga 24RT • Rombo Productions

Rombo's newest digitiser is a real-time, fast scan model capable of grabbing from either composite or Y/C video and saving an image in impressive 24-bit hi-res overscan (as well as other formats, including ILBM, AGA and TIFF).

The 24RT attaches externally to the Amiga's parallel port and takes its power from an external 9V supply. Grab quality is nothing short of stunning, though you really need a hard drive to store the 24-bit digitised images that can be produced, as they tend to be rather large.

The software even includes a range of image processing functions which could well come in handy when you need a special effect or two.

Vidi-Amiga 24RT works with any Amiga (may need extension cable/gender changer) and requires at least 2Mb of RAM. RRP £299, though should be available for less.

There is also a cut-down version of the 24RT – the Vidi-Amiga 12RT. The only difference is that it cannot grab interlaced images (maximum size 720 x 368 pixels) but it does cost around half the price of the 24RT!

The only major drawback I could see with the RT models was that the preview screen worked rather slowly, though Rombo have just released a new version of the software so perhaps this has now been cured.

VLab YC • MacroSystem

VLab YC is a fast scan digitiser which accepts either composite or Y/C video. Unlike the Vidi models, this one installs internally into an Amiga Zorro slot, which gives it the edge for speed over the Vidi-Amiga 24RT. It also performs a few clever tricks, the best of which is to grab continuous sequences direct to hard drive.

VLab grabs at extremely high quality (up to 24 bit) but, like Vidi-Amiga 24RT, it cannot capture images in full video overscan – only up to a maximum of 720 x 625 pixels.

VLab requires at least 1Mb of RAM and AmigaDOS 2.0. A hard disk is almost indispensible – and a definite requirement when grabbing sequences.

VLab Y/C costs a little more than Vidi-Amiga 24RT but it does provide the convenience of internal mounting and sequence grabbing, among other benefits. On quality though, there's little to separate the two.

There are, of course, a number of other digitisers on the market – some which are standalone, others which are part of another device (DCTV for example).

Those mentioned above are my personal recommendations but of course you should do some research of your own to find out what best suits your needs and budget.

Which digitiser for you?

There are two main considerations here – first cost, and then the type of Amiga which you own. A top-notch fast scan digitiser such as VLab YC or Vidi Amiga 24RT will set you back upwards of £250, but will provide great grabs in up to 24-bit quality, along with other benefits, depending upon the digitiser model.

Slow scan digitisers are much cheaper, but lack the finesse of the fast scan models. Nevertheless, perfectly acceptable images can be grabbed with such hardware, provided that you have video equipment capable of rock-solid freeze frames.

The type of Amiga dictates whether the digitising hardware can be externally or internally connected. Amigas without Zorro slots (the A500, A600 and A1200) can only accept external digitisers but other models can use either external units or internally-mounted cards.

The advantage of internal cards is both speed and tidiness; data transfer is improved by utilising the Amiga's data bus and there are no extra boxes to squeeze onto your desk.



Two different styles of digitising software (VLab and Vidi-Amiga 24RT). Outwardly quite different, but actually very similar in function

The video digitiser

The video digitiser or frame grabber captures an image which is in the form of an analogue video signal and converts it into digital signals which can be used and manipulated by the computer.

At the simplest level the digitiser samples the video signal waveform and describes the high and low points of the wave in numerical data. This produces a black and white image on the computer. To get a better image with more grey levels the video signal waveform is sampled at faster speeds and at more levels in between the darkest and lightest points.

Colour signals are split into their red, green and blue components and each of these individual signals are sampled as if they were monochrome. Once in digital form the red, green and blue data is reconstructed by the computer to give a full colour image on screen.

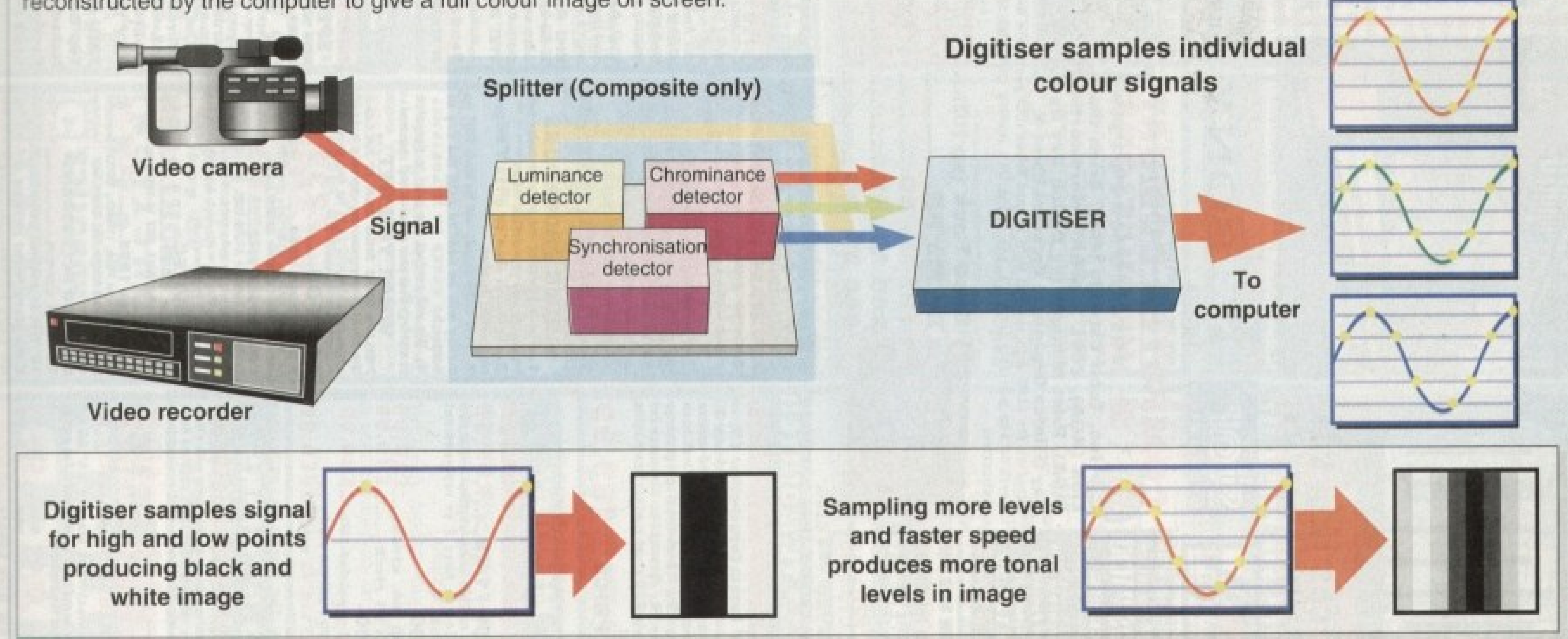
Composite versus component

Video signals come in two main types, Composite and component signals. Composite video is most widely used of the two but component video provides better quality.

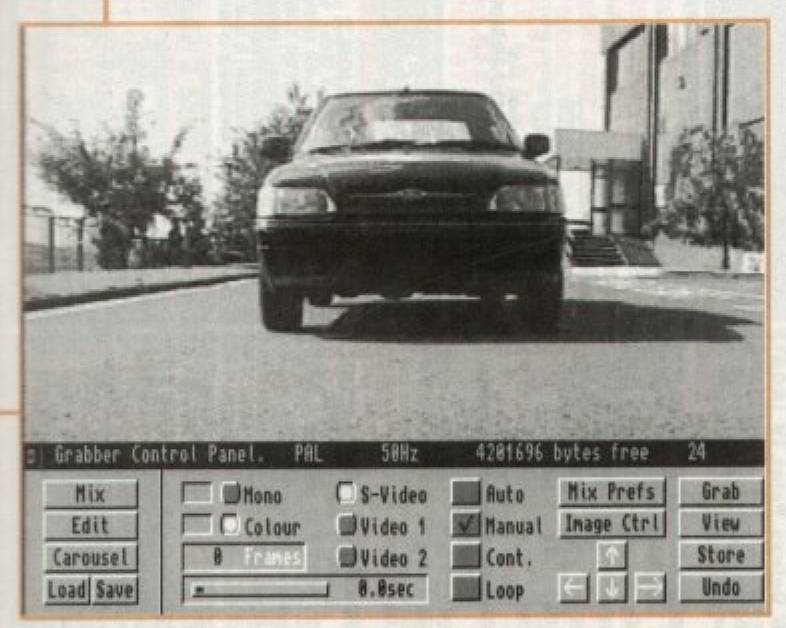
Composite video comprises a luminance signal (brightness), a chrominance signal (Red, green and blue) and a synchonisation signal all sent along the same cable.

Component video sends red, green and blue signals along different cables.

Before a composite colour signal can be digitised it has to be split into its component parts so that each part can be sampled.







colour filters .... Red, green and blue filters used with mono cameras to enable colour grabs to be made. Older digitisers such as DigiView used such filters.

digitiser .... Hardware used to capture and digitally convert a video image into a format which can be used by a computer. Two varieties exist – slow scan and fast scan. Fast scan digitisers use frame buffers to enable rapid grabbing from video.

frame buffer .... Dedicated memory built in to a fast scan digitiser. Used to dynamically capture a full frame of video on demand.

RGB .... In a similar way to which light can be split into three primary colours (red, yellow and blue), a video image can be electronically split into three separate RGB components. This RGB data can then be used for storage, conversion and high-quality display on a suitable monitor.

video camera .... Hardware for capturing images as video. Available in two flavours – chip (CCD) and tube, according to the type of image sensor used. Modern cameras are usually chip cameras and offer more reliability, flexibility and sensitivity in a smaller package. Older or cheaper cameras may be mono only and require the use of colour filters.

video signal .... An electronic signal which contains video information. Various formats include Composite, YC, Component, RGB and RF (radio frequency). The first two are most commonly used in digitising, editing and other applications and the latter is generally used for domestic TV transmissions. YC is the format used in S-VHS and Video8 equipment and provides superior quality to Composite video.







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On the

With £4 million and 65 CD32s, the re-launched London Transport Museum has entered the technological era, giving visitors the chance to smell, see, touch, hear and taste London's past. Adam Phillips reports

Museums have suffered in this new age of hi-tech customers demanding exciting and involving hands-on experiences. Walking round a mausoleum to history, not being able to touch, manipulate or participate with the exhibits, is fast becoming an historic event in itself.

Fortunately for British culture and heritage as we know it, enterprising individuals and teams have started to change this perception of museums, and now, after nine months of redevelopment, the London Transport Museum has opened its doors with an exhibition that tells the story of the past in a refreshing and modern fashion.

Situated in Covent Garden, the museum underwent a complete facelift for nine months during 1993. Four million pounds later, and the building that houses the array of different transport machinery has changed into a plush, up-to-date interactive learning experience.

Interesting

New floors have been built and a multitude of displays, video walls and simulators installed to make the visitor's tour as interesting and informative as possible.

In the impressive-looking building with its high walkway and spiral staircases, the exhibition is broken into several sections on different elements of travel – from 1930s buses and horse-drawn trams to the latest minibuses and underground system.

Each is a story in itself that builds up like a jigsaw puzzle into a full-blown picture of how Londoners travelled in the past and present.

This may sound similar to other museums but very soon you begin to sense a difference. Walking through the display of horse-drawn trams, you start to smell that distinctive odour of horses and hear their hooves as they hit cobbled streets in full quadraphonic sound.

As you pass the first tram, a screen placed on a stand looks back at you. On closer inspection, it reveals a picture with a set of options at the bottom of it. Pressing on one of these flicks the next image on, revealing another part of the story. Indeed, continue walking and you'll see, hear, smell, touch and taste your way around all of the exhibits, making the experience all the more interesting and – more importantly – involving.

Because of this attention to detail, there always has to be a high performance, multimedia machine driving it. With 65 CD32s installed on racks out of sight, with expansion units, three high-powered Amigas and further plans to expand the range, the LTM has more than its fair share.

The two principal men behind the development of the museum's new technological look are Mick Tinker, of Index Information, and Rob Lansdown, head of communications and displays for the museum.

It all began four years ago when Index, an Amiga-specific multimedia company, were brought in to help with two simulators to be included within the existing exhibits.

These were so successful (and reviewed by this very magazine in 1990) that when LTM began to hunt round for ideas and people to carry them out, Index Information were the obvious choice.

Mick Tinker, technical director for the company, was asked to make a presentation. With the likes of the Philips CD-i biting at his heels, Tinker realised that Commodore's CDTV, while having the ability to provide the graphics required, could not deliver the clarity of text needed.

Having heard about the CD32 and its highly useful expansion port, he drew up a rough design for a module that would expand on the machine's basic facilities and suit all the museum's needs.

After successfully outshining rival machines, the CD32 was selected as the tool for the job, and plans for its installation began.

Rob Lansdown came on board to work out how the CD unit would be used throughout every aspect of the museum. Each human sense was to be given full attention – what people would hear as they moved from exhibit to exhibit, what they would smell and how they would interact

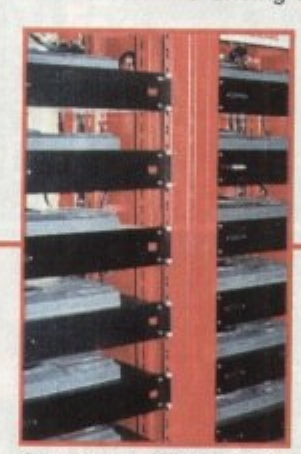
Technofear

With this influx of technology, there are bound to be people out there who are a little nervous of touching a screen, simply because it's new to most visitors.

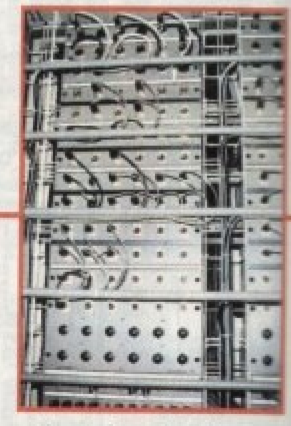
In fact, Rob Lansdown believes that there are quite definable age groups who will use the screens, or won't unless prompted. For three to 16-year-olds it's no problem. They know their Sonics and Marios so why should touching a screen bother them?

Sixteen to 25-year-olds are embarrassed a little to touch the screen, while the middle-aged are reluctant at first, stand back and watch and then step in to have a go. The elderly won't touch without plenty of encouragement.

Fortunately, any misgivings about people shying away from technology have been well and truly trounced with the latest attendance figures showing an increase in popularity since the museum's re-opening.


Stacked in AV racks, the 65 CD32s sit in their CDx expansion unit...


... where they are connected from out of the back and into...


... the main networking system, and they travel all over the museum to...

right track

with what is usually a hands-off experience.

As Lansdown enthusiastically points out: "Transport is all about movement, so it was up to us to create the illusion of movement through the technology."

The first step was to install the machines in one room for efficiency and effective trouble-shooting management. "We were initially given three months for installation. This was reduced to eight weeks and then finally down to eight days – the pressure was certainly on."

Next up was the CDx that enabled genlocking, networking all the machines to their respective places, the ability to sense touch screens and other highly useful features.

After attaching these to each of the CD32s and putting them in a rack system, 680 cables were fed from the room to various points all over the museum and 572 hours were spent soldering and crimping the leads.

The end result is that all sounds and visuals, other than the video walls, are controlled by the CD32s and Amigas.

The software used in the exhibits ranges from simple touch-screen information bases to three underground simulators. There are over 40 monitors around the building, each displaying information about a particular exhibit and its history.

Photographs from the past are shown and text can be viewed in either French, German or English; more languages will be included when the system is finished.

Reading through the text, you'll see a particular word highlighted by a box. Press on this and you'll enter a sub-section giving further details on the particular subject selected.

The disc accessing time is around two seconds and the usual number of sheets to look through ranges from 15 to 20 per vehicle. Lansdown hopes to increase this to 50 in the future.

Continuing around the museum, one of the most impressive and interesting exhibits is the computer-displayed Underground hypermap. It shows the Underground's development from its early beginnings in 1863 with the opening of the Metropolitan Line, to the 1990s.

3000 screens

Pressing on the date counter at the bottom, the CD32 adds the train lines at the time they were built. Touch one of these lines on the screen and you'll be shown a close-up of that particular segment.

Press on an underground station and information about its history will be displayed depending upon which year was chosen. Any photographic images will also be flashed up for your perusal.

This system runs from a 550Mb data file that includes 3,000 screens and a program to run it all. This is all put on three disks and played via the CD32.

To add to the Underground experience even more there are three simulators to lay your hands on. The first is of a 1938 train that is housed in an authentic train cab with fully operational controls.

The front window has been replaced by a computer screen that displays real time 3D graphics provided by the highly powerful Amiga 4000. The player must accelerate down the tunnel and then come to a stop at the station so passengers may get on and off.

Sounds like simple stuff when compared to the likes of TFX but given the realistic setting and the highly attractive graphics, this is an well executed idea. The other two simulators, run by A2000s, show the 1890 and 1992 models of underground train with the latest being fully computerised, even down to the speed the vehicle travels in the tunnels.

The aural side of the museum is well catered for too – stepping on to a old train and sitting down, you'll begin to hear the sounds of wheels on rails as they clank their way towards a non-existent destination. Speakers under the seat add to the experience to give the visitor a feeling of motion without ever leaving the platform.

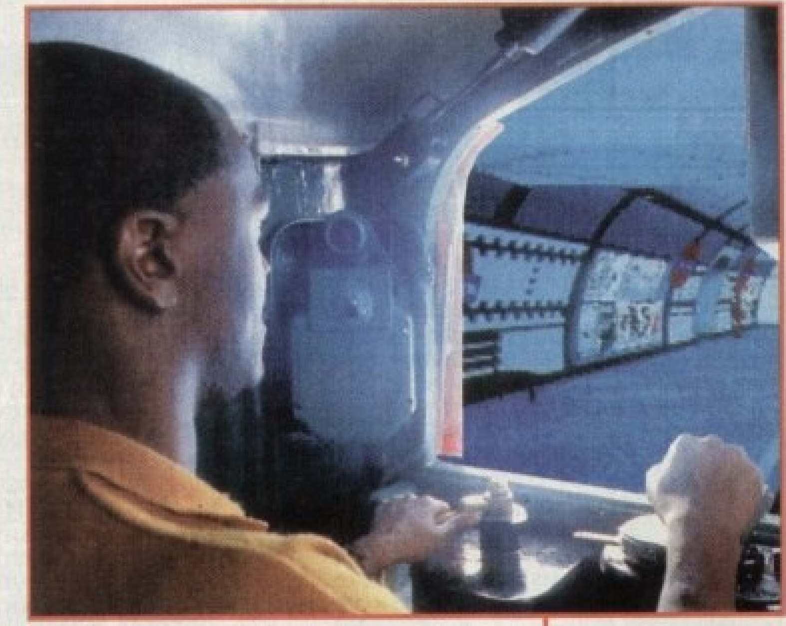
Go over to the country display which catalogue the vehicles once used by the commuting public, and birds can be heard chirping away in the background in clear digital recordings.

Move upstairs to the minibus sound simulator and the user is able to sit in the driver's seat, go up through the gears, flash indicators and open and close doors, all accompanied by the relevant sound effects.

The wave of progress has not stopped here, though. There are plans to enlarge the amount of information to the visitor, to increase the number of screens and include full motion video displays as well to maximise user involvement.

Coming away from the new look London Transport Museum leaves you with the feeling that at least one part of our British heritage will remain in years to come because the owners and curators decided to move with the times.

And if you're wondering what taste can be sampled at the museum, then try their café after you've finished your visit.



One of the underground simulators with full, original controls and 24-bit graphics

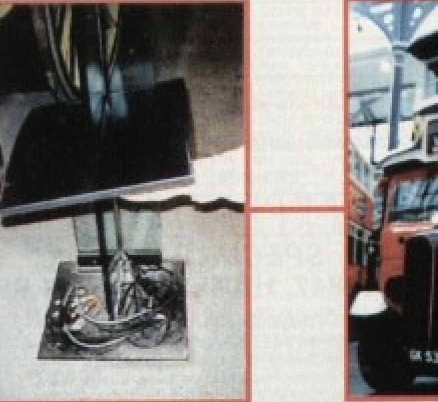


The two leaders of the project: Mick Tinker, Index Information, and Rob Lansdown, head of the museum's communications and displays

Visiting details

The museum is open from ten in the morning until six in the evening and charges an admission fee. There are concessions for senior citizens, UB40s, students and the registered disabled.

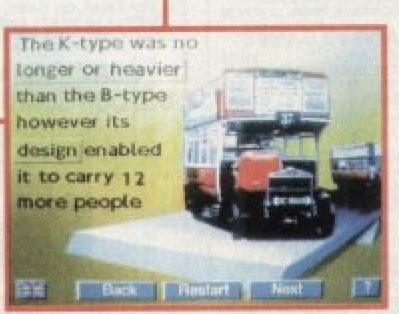
For further information, ring 071-836 8557 for recorded information. And for more details on the CDx expansion unit, phone Mick Tinker on 0256 703426 at Index Information.



... the exhibits like the numerous stands which..



...supports the touch screen monitor and allow the visitor to..



...select with a single finger what they wish to see



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With the possible exception of the Video Toaster, nothing has generated so much excitement as the imminent arrival of the PAR – alias Personnel Animation Recorder – from Digital Processing Systems.

As the name suggests, the PAR card was initially designed to bridge the gap between rendering and actually recording Amiga graphics. In the past the only means to achieve full-frame 24-bit video was to record each frame individually onto tape with an SP edit recorder.

Unfortunately this kind of hardware costs around £5,500 and if used heavily demands another £800 a year in maintenance. In addition the recording process is slow and you're never guaranteed that the end result won't suffer from drop-out or other imperfections.

SOULUTION

As a result every serious Amiga artist has been praying for a solution to this irritating – not to mention expensive – problem. As a result, DPS set to work developing a digital video recording system which would provide superior quality, security and speed at a much more affordable price.

Fortunately they didn't stop there, and what was initially a single frame recording system has now become a complete digital audio/video system capable of grabbing, editing and playing CD quality audio and 24-bit live video as well as compiling 24-bit animation from the Amiga.

As you may have guessed the PAR card is by no means the only element in this seemingly impossible equation. In fact to build the complete system you require two addition cards. For sound you'll need the SunRize direct to disk recorder and for live video recording the DPS AD3000 capture card.

If you flip to the System Essentials box you'll see this adds up to quite a sizable investment. However the system is completely modular. If you don't need sound or live video capture the PAR will function perfectly without them.

After adding the appropriate hardware, the first port of call is the PAR control software. From left to right you have the list of projects, a selection of animations within the current project and a list of available AmigaDOS volumes that you can download frames to or compile animations from.

At the bottom of the project window you're provided with various options to initiate and control them as well as a format the dedicated IDE hard disk/s.

In the central files window await the PAR's own version of non-linear editing tools. Assuming you've already recorded various animations, it's here where the cut and paste begins.

Courtesy of the assorted buttons you can join various anims to create finished movies, split existing files into smaller scenes, export frames as individual stills, ranges, fields or frames as either IFF, Targa or PAR files.

FRAMES

You can also rename anims as well as duplicate them. Like all the other processing tools, duplication will work on both stills, frames and ranges as well as offering the added bonus of optional ping-ponging and anim reversal.

Not surprisingly the copy and move command permits anims to be shared with other projects while the append enables new live footage to be joined directly onto

Sound solutions

The entire system worked perfectly right from the off, but I did find one aspect of the system rather difficult to master. As you already know the PAR can work in concert with the AD516 sampler.

However the manual only managers to lavish a couple of paragraphs on the subject of combining the two. As a result I was forced to figure out the best way to sync the two cards together.

Thanks to the SMPTE option on the PAR control software you can tell the PAR to pause until a particular SMPTE number is read internally from the SunRize board.

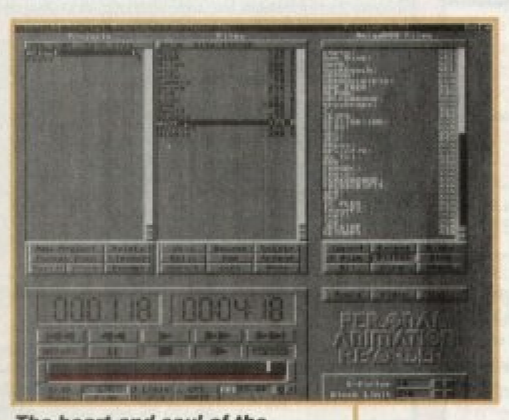
Initially I tried in vain to dive between the two programs in a desperate attempt to trigger the two simultaneously. Unfortunately the end results were invariably disastrous.

Fortunately in a rare spark of genius I remembered that v3.0 of the Studio 16 offers a punch in/out facility. As a result I simply matched the SMPTE trigger and recording duration in the PAR software to the punch in/out time within Studio16 then hit record.

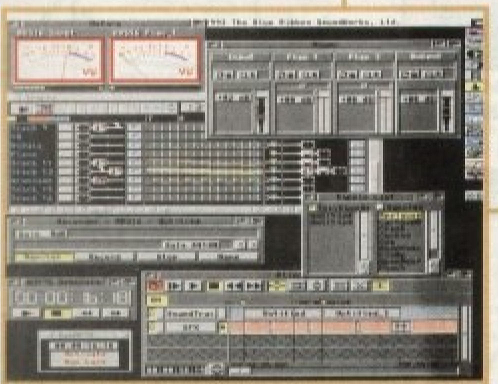
The SMPTE count started, the punch-in began and the pause record on the PAR transport control was releasedsimultaneously, providing totally accurate sync between both audio and video.

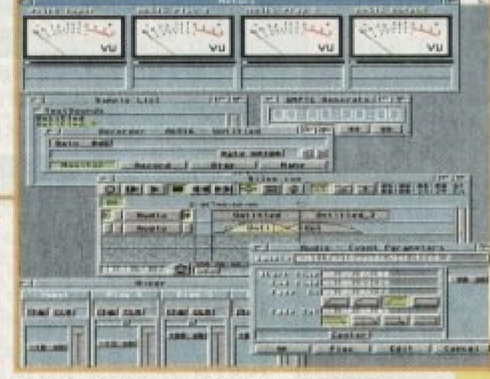
> The system worked perfectly right from the off

Get ready to be amazed as Paul Austin explores the most exciting digital development ever to hit the Amiga



The heart and soul of the system. Complile anims or capture live video with a couple of clicks


Bars & Pipes Pro 2, Studio 16 and PAR all working in perfect hamony


Thanks to Studio 16's drag and drop technology, lip sync is simplicity itself



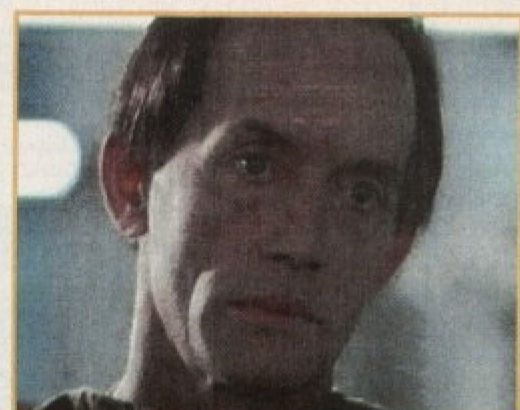
To add a new scene you simply repeat the process on the next track and when all your edits are complete you just drag the sound samples onto the same track, butt them up against each other and join the various anims together in the PAR software.

As a result you can build an entire movie from countless video sequences and still retain perfect lip sync.

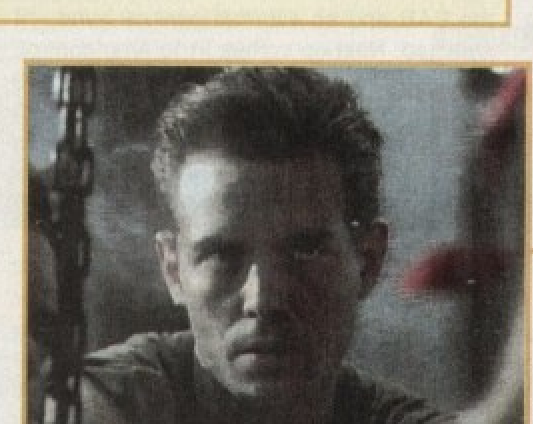
To put the system to the ultimate test I then loaded Bars&Pipes Pro 2 and added Studio16 as an accessory. Again the AD516's SMPTE timecode was used as a common reference to link the programs Midi output with the sampled sounds.

I then recorded a matching CD quality stereo audio and video sequence on PAR and SunRize boards, loaded in a Midi composition and sat back in disbelief as the anim played with perfect lip sync as the Midi instruments added the backing music.

Twenty-four bit, full frame, full motion video, a CD quality stereo sound track and live Midi accompaniment all from a single machine and without a single glitch. Impressive almost sounds like an insult...



"So you can capture live video and 16 bit audio from the same machine"



"That's what I said Bishop, it's all pretty strightforward thanks to the SMPTE link"



"Yo guys, let's not forget the Midi backing from Bars & Pipes

an existing file.

Last but not least comes the delete command which again can be applied to ranges or entire animations. Like its counterparts, the AmigaDOS window bristles with buttons which enable you to navigate the Amiga's directory structure, add stills from disk, build animation from pre-rendered sequences and even load individual images for viewing.

A particularly pleasant touch is the inclusion of a colour filter which will automatically tone-down hot colours – making them compatible with the colour limitations of video – which if exceeded can cause real problems when recording to tape.

While on the subject of anim compilation, one of the most important aspects of PAR's affinity with AmigaDOS is its ability to compile animation direct from rendering software.

When the PAR software boots it automatically creates a virtual volume entitled DDR:.

As a result it's possible to completely automate anim generation. Simply tell the software to render direct to the DDR volume and PAR will automatically compile the animation as it progresses, saving you time and better still massive amounts of disk space.

And because the PAR hard drive can be addressed as a normal AmigaDOS volume, it can also be backed-up using software such as Ami-Back or Quarterback.

Although direct render-recording is easily the most efficient approach it doesn't mean you can't compile from existing files; in fact as long as the files are saved as 24-bit IFFs anything goes, with an average conversion time being one to 12 seconds for each frame.

At the bottom of the scene we come to the heart of PAR control system with an array of tape-deck-style transport controls. All the old favourites are available including play, pause, single frame advance, first and last frame, slow motion and of course record. However buttons aren't the only ➤





Installation made easy

I must admit on first unpacking the complete system it does look rather daunting with three cards, the essential IDE hard disk plus connecting cables.

However after connecting the IDE and capture card to the Par and sliding in both adjacent Zorro slots along with AD516, things soon looked more friendly.

After replacing the lid and connect up the necessary audio and Video Ins and Outs I sat down to install the software fully expecting countless teething troubles.

However much to my surprise the system was completely glitch-free right from the off – and remained so throughout the entire review.

Not once did the system let me down, not a single frame was dropped or sample misplaced. OK, you might expect nothing less from such expensive hardware, but believe me total reliability is a rare thing and stands as a testament to the excellent build quality and software development that's gone into the system.

For the technophiles in the audience the combination of the capture card and PAR provide composite, S-VHS and component video ins and outs respectively, while the AD516 sampler provides eight track recording and playback via twin stereo ins and outs..

means of control. A slider has also been added enabling the mouse to become a graphical jog shuttle. Simply click a button and drag the bar to the frame of your choice – all in real-time of course.

Above the transport control sit arguably the most important elements in the entire interface. On the left you have the frame count in the PAR format, while the right shows its equivalent in SMPTE timecode.

By referencing the two you can cut and paste frame accurately and mirror the edits in the SunRize sampling software to maintain lip sync with the audio track.

Below the transport controls await a further eight buttons plus the FPS – or frames per second control. When the transport is in slow motion mode, the FPS window allows any slow-motion speed to be applied.

First up in the button bank comes the grab option which allows you to take a single real-time grab from the incoming video. Alongside is the curiously titled E/E button which enables a live preview of the video source – this automatically activates prior to recording.

CONTROLS

Next comes the frame or field selector; basically this toggles the PAR between full interlaced video and individual video fields, which is very useful when running in slow-motion as interlace flicker can often be a real problem.

Alongside field and frame control comes the GPI button which apparently stands for general purpose interface. Basically this allows limited remote control from either a second mouse or edit controller.

Unfortunately the GPI demands some basic cable construction to make the necessary connections but once established pause and play can be toggled directly from the edit controller – unfortunately that's as far as it goes.

On the second row lurks the mono button which surprise, surprise toggles between colour and mono. Alongside this awaits a film/video button which enables playback of your creation at 24 FPS – alias movie speed...

Following this comes the field selector for the field or frame button directly above. Lastly comes the all-important SMPTE button which produces a requester into which you add the SMPTE trigger time for simultaneous control of playback and recording when running in conjunction with the SunRize software.


Instant special effects thanks to a bit of image processing

In the bottom right await another four controls which combine to fine tune the incoming video and aid colour correction. First up is the prefs requester which allows alteration of screen colours and adjustment of the sync between the PAR and an external genlock sync – if selected. Next up comes Proc Amp control. Basically this only applies to systems running the AD3000 frame grabber. In addition to being a capture card it doubles up as a TBC which can colour correct the incoming video.


Live colourisation control using the built-in proc amp on the cature card

In addition, it's from here you select the video source whether it be Composite, Y/C, or S-VHS/Hi8 and CAV – otherwise known as component. It's also possible to freeze the incoming video and define a range of ten colour correction presets which can be recalled to improve the colour balance or generate colourising effects which are then passed onto the PAR during recording.


Our illustrious editor moments after the infamous regurgitating of a glass of vadka trick

With the exception of the Quit button all that remains is quality control. In the case of the PAR this is split into two elements. First comes the Q-Factor, which as you've probably guessed refers to image quality. The higher the Q-Factor the higher the image quality in the subsequent animation.

However to achieve higher image quality you must increase the number of blocks used to store each frame. Obviously the bigger the block setting the more space will be required for the subsequent animation.

In addition the speed of the target drive also affects the maximum possible Q-Factor. Basically the whole process is a balance between image quality, disk space and hardware speed.

BALANCING

Fortunately you're aided in the balancing act by a requester which pops-up at the end of each recording telling you what the maximum block size was in that particular sequence.

As a result you can adjust the block size accordingly and re-record to attain the maximum storage space in relation to the required Q-Factor. The maximum possible Q-Factor is 23 which is akin to MII. In other words as close as you can get to D1 – alias true digital video – without a digital camera.

To give you a better idea, Composite video is roughly Q-Factor 10 while S-VHS lies between 12 to 14, and to achieve SP quality you'd need a Q-Factor of maybe 15 to 17. When grabbing, live video time is of the essence and the maximum reliable Q-Factor I could manage was 18 with a maximum block limit. As mentioned, this translates to image quality above that of a Betacam SP player – however due to the block sizes this would only allow about 5/6 minutes of footage on a one gigabyte drive.

However when you're compiling animation from rendered images the Q-Factor could be pushed even closer to the maximum – as the system has much longer to process the data and compile the anim.

If you're willing to set your sights a little lower, at lets say S-VHS/Betacam SP quality, I'd say you'd squeeze between nine and ten minutes from the same one gigabyte drive.

Of course you're not restricted to this particular drive size and if necessary a second drive can be added as a Slave if space becomes a problem.

Verdict

As you've probably gathered I'm impressed if not amazed by the power, flexibility and reliability of the system. However nothing is ever completely perfect and PAR is no exception.

First of all the manual could do with some attention. At the moment it's slightly vague in some key areas – with the connection between the PAR and SunRize board being the most notable example.

In fact the audio link could be made a little simpler in general. Fortunately SunRize are aware of the problem and have promised a virtual PAR track in the next software update.

Hopefully this will completely automate the audio/video connection, but until then you'll be forced to note SMPTE times and cut and paste the audio and video separately.

Another omission is the lack of an RS244 control port on the PAR card. Without such remote transport control it's impossible to totally integrate the PAR with an edit controller or A-B roll system.

However, leaving these two curable problems aside, it must be stressed that the PAR system is nothing short of the next step up the evolutionary ladder for the Amiga and videography in general.

Background

Although PAR is a spectacular development, it's worth remembering that it is the first of its kind. In fact there are already two systems – from Macro Systems and Helfrich – which are in the final stages of development and promise a similar blend of 24-bit video and 16-bit audio.

Better still, both plan to retail at a significantly lower price, and unlike PAR claim not to require a dedicated hard disk. However, I find it very difficult to see how they can out perform the PAR when it comes to overall quality and, perhaps equally importantly, reliability.

SYSTEM ESSENTIALS


RED = Essential BLACK = Recommended

4 Mb RAM | 030/040 | Hard drive



The bottom line

Product: PAR
Supplier: Premier Vision
Tel: 071-721 7050
Fax: 071 721 7109

PAR: £1,675
Micropolis IDE drive 1 gigabyte: £743
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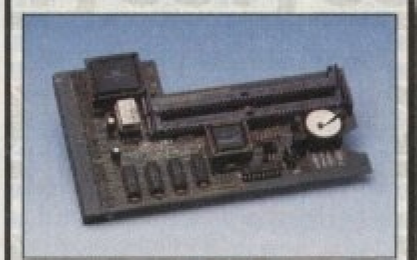
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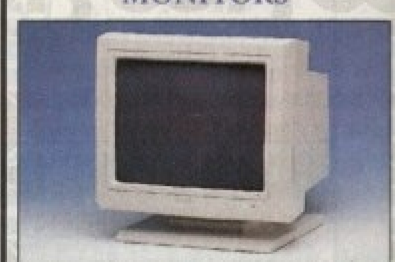
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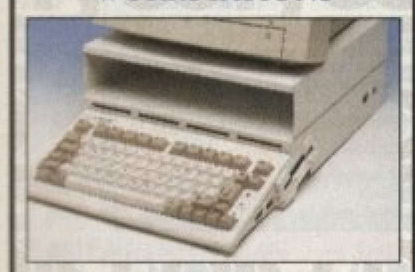


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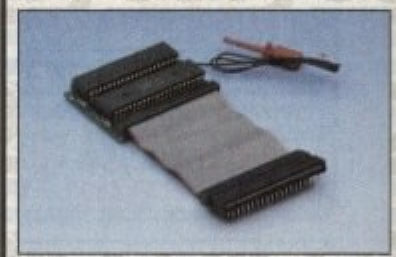
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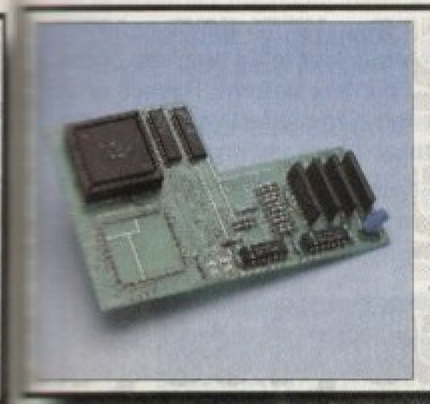
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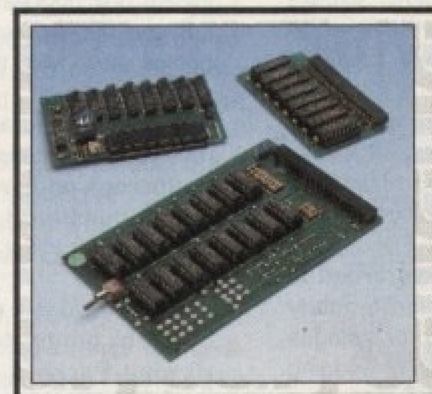
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Inkjet refills

Inkjet refills certainly aren't anything new but in the past they've always seemed rather expensive. In fact in some cases the difference between a refill and a completely new cartridge has been relatively nominal.

With this the case, many – myself included – have been put off the whole process, especially when confronted with the prospect of fiddling around with syringes and bottles of potentially messy ink.

However, Jarome Russell are determined to revamp the appeal of the refill. Unfortunately they can't avoid the age old problem of syringes but they have done a remarkable job of bridging the divide between hassle and expense. As you can see, the fairly stylish box conceals not one but two refill bottles along with the essential syringe.

In addition you also receive fairly extensive instructions on how to refill a number of the more popular inkjet cartridges.

These include a step-by-step guide to the Hewlett Packard, Canon and Olivetti range of cartridges, although a little common sense should allow pretty much any cartridge to be recharged.

Unfortunately colour refills aren't an option but for mono printers Jerome Russell offer probably the most cost effective refills in the business with each pack retailing at just £5.99, or two for £9.99 – including postage and packing.

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Bargain buys

Unmissable optical character recognition software, multimedia speakers and budget inkjet printer refills get the once-over from Paul Austin

Most Multiscan monitors can easily be used with Amigas. Some more modern multiscan monitors incorporate DMS (Digital Memory Sizing) which automatically resizes the screen to cope with extended video features such as overscan etc.

Without this feature, it is necessary to adjust the picture sizing and position with the controls available. Multiscan monitors are generally the most expensive of all types of monitors.

You should expect to pay more for DMS. When buying a multisync monitor, make sure it is able to scan down to horizontal frequencies of at least 15kHz, for the Amiga's PAL and NTSC modes.

Plagiarism was never easier than with OCR software

MiGraph OCR software

OCR software on the Amiga for less than £50, surely not? Well unbelievable as it may seem, the Amiga's leading OCR software has taken a dramatic price cut, down from a rather hopeful £265 to just £49.95.

For those unfamiliar with the term, optical character recognition quite literally teaches your machine to read. All you need do is provide the text in the form of a scan which is then interpreted by the software. If all goes well it should then produce an Ascii text file which can be loaded into any word processor, DTP package or text editor.

As you'd expect such a system relies heavily on the quality of the scan, but assuming you can provide the necessary IFF, TIFF or IMG image the process can be surprisingly fast, and better still accurate.

As you may have guessed via the reference to the various file formats it isn't even necessary to own one of the scanners directly supported by the software. In fact any scanner that can provide a reasonable resolution mono scan can be used with the software.

As far a resolution is concerned the higher the better, with the optimum level being 400dpi, although having said that I've tested the software using a JX100 colour scanner which has a maximum resolution of 200dpi, and the results were still very respectable.

However no matter what scanner you choose it's a good idea to have a fairly reasonable amount of RAM on-hand – around 3 to 4Mb is probably a sensible starting point.

It's not that the program demands a lot of RAM, but unless you can scan and process a fairly sizeable area and still retain reasonable resolution it would probably be quicker to copy the text manually.

Considering the complexity of what's going on in the background, the program itself is surprisingly simple and friendly – a classic example being the ability to rotate and flip the scan to achieve the correct orientation.

Assuming you're happy with the scan, what's next? Well that depends on the scan itself. If it's pure text you can simple process the whole page. However, what happens if there's graphics and artwork spattered around the scan?

Fortunately Migraph have come up with a solution in the form of a selection of basic drawing tools which allow the creation of boxes and polygon regions which can be drawn around specific areas of text.

Obviously many publications – ours included – present their copy in columns or legs, which if scanned from top to bottom would generate an illegible mess.

However with the assistance of the drawing tools you can isolate each section, column or box out. If you then select them in the appropriate order before

Multimedia speakers

Add-on speakers are nothing new to the Amiga but in the past the vast majority have been rather shabby creations which on the whole would look more at home on the back shelf of a Cortina.

However GoldenIMAGE are set add a little glamour to the Amiga's audio output courtesy of their new Multimedia speakers. Unlike most add-on speaker systems, this new range appear to be dedicated computer speakers rather than cheap car speaker converts.

As you can see, styling has been taken very seriously with obvious results combining good looks with logical design. Controls are pretty basic with a simple off/on switch, and volume control controlling both speakers.

The only minor annoyance concerns connecting them to the Amiga. Unlike most add-on speakers these rely on a stereo mini-jack for input rather than the usual phono configuration.

As a result you'll probably be forced to buy additional cable from your local Tandy to make necessary connections.

However in my opinion they're well worth the additional effort and expense. It's fairly obvious that the speakers are basically a port-across f rom the PC which often uses such connections for the various PC sound cards. As for sound quality there's no complaints whatsoever – especially considering the price.

Two classic signs of dodgy construction are speaker rattle and signal distortion at higher volumes. But in this case there was no sign of either, even when they were cranked up to full volume.

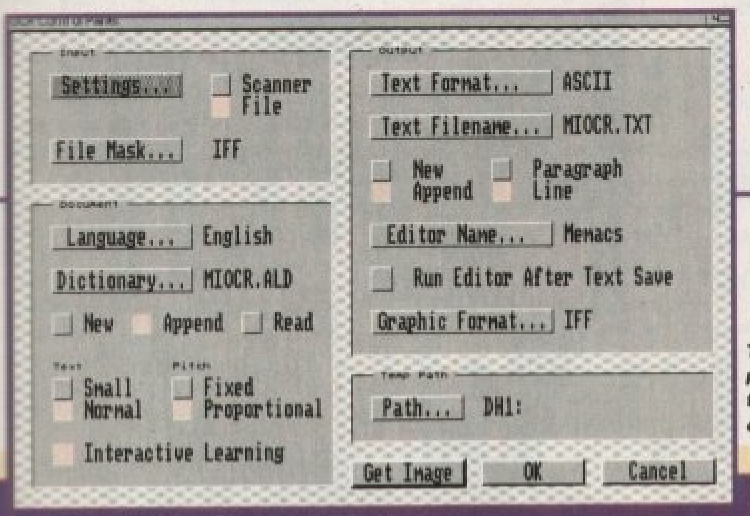
However before you rush to the phone it must be stressed that the Multimedia range are dedicated computer speakers and aren't really much use for anything else. The impedance is very high and as a result they do need to be driven fairly hard.

In addition they are slightly lacking in bass department and have a marked tenancy to buzz slightly when used with anything other than computer output.

Basically they look great, sound good and retail at a very affordable £29.95. If you want to add a little glamour and improve your audio at the same time they're a big improvement on the opposition.



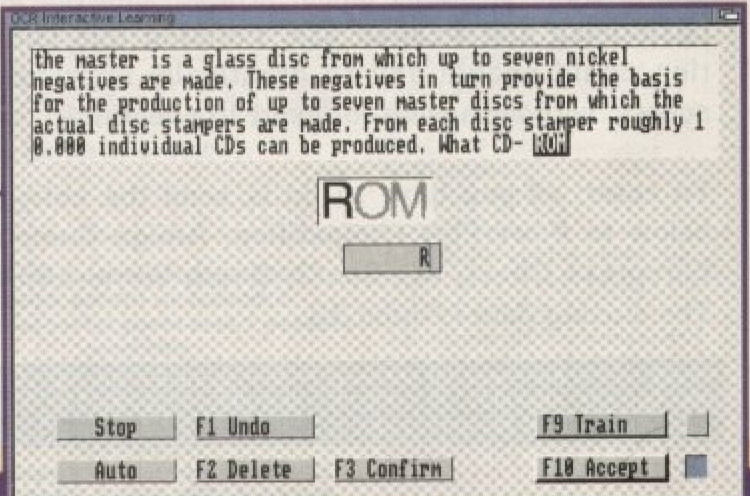
Supplier: GoldenIMAGE
Price: £29.95
Tel: 081-365 1102



There are ample preferences tomake recognition easier



Teaching the sotware to recognise unusual words



initiating the OCR, each is processed in sequence and compiled into the output file in the correct order.

When the OCR is initiated it relies on mathematical definitions to identify each letter in combination with an optional interactive learning. In the past OCR software relied on raster-based processing which demanded a huge database to which scanned data could be cross-referenced; fortunately this isn't the case with the Migraph software.

Thanks to Omnifont mathematical definitions, the database isn't required and as a result much less space is needed, while accuracy and flexibility have improved considerably.

Of course, interactive learning hasn't been abandoned and after every OCR pass you're presented with a screen which scrolls through the text picking up any dodgy characters, symbols and grammatical marks that the software doesn't recognise.

As a result you can train the software to spot irregular words or typos which can be appended to the existing dictionary. If you can't be bothered editing the text manually it's also possible to let the software automatically scan the data and correct any obvious mistakes.

Not surprisingly, the process isn't perfect with a common mistake being the failure to spot capitals and grammatically misinterpret marks. However if you tend to process particular fonts on a regular basis even these errors can be eliminated.

All in all I'm pretty impressed. It did fall down on serif fonts more often, although on sans serif typefaces it was often near-perfect. Basically if you've got a lot of text to convert and suffer from particularly poor typing speed, it's just what the doctor ordered.

Add together a decent scanner, a reasonable amount of RAM, the Migraph software and a good word processor, and plagiarism couldn't be simpler.

Personally I found by far the fastest working method was to process the scan, run the automatic recognition sequence and then load the text straight into a word processor – preferably employing the Collins Linguibase proximity spell checking system.

Once safely installed into the word processor, a quick spelling check usually corrects any remaining errors. Finish off with a quick read through, and Robert's a close relative – so to speak...

Supplier: GoldenIMAGE
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...to become a computer games master in our PowerPlay video competition

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To enter, all you have to do is send the entry form below to PowerPlay competition, Amiga Computing, Europress Direct, PO Box 2, South Wirral L65 3EA. The closing date is June 30.

Result information may be obtained by writing to our offices. No cash alternative to othe prize is availalbe. The editor's decision is final. No correspondence will be entered into.

ENTRY FORM

AMC 6

Q1: What is Danny's job?

____

Q2: Name two of the techniques covered in the video

____

Tie-breaker (in no more than 20 words): I need help with my games playing because... ______________________

____

____

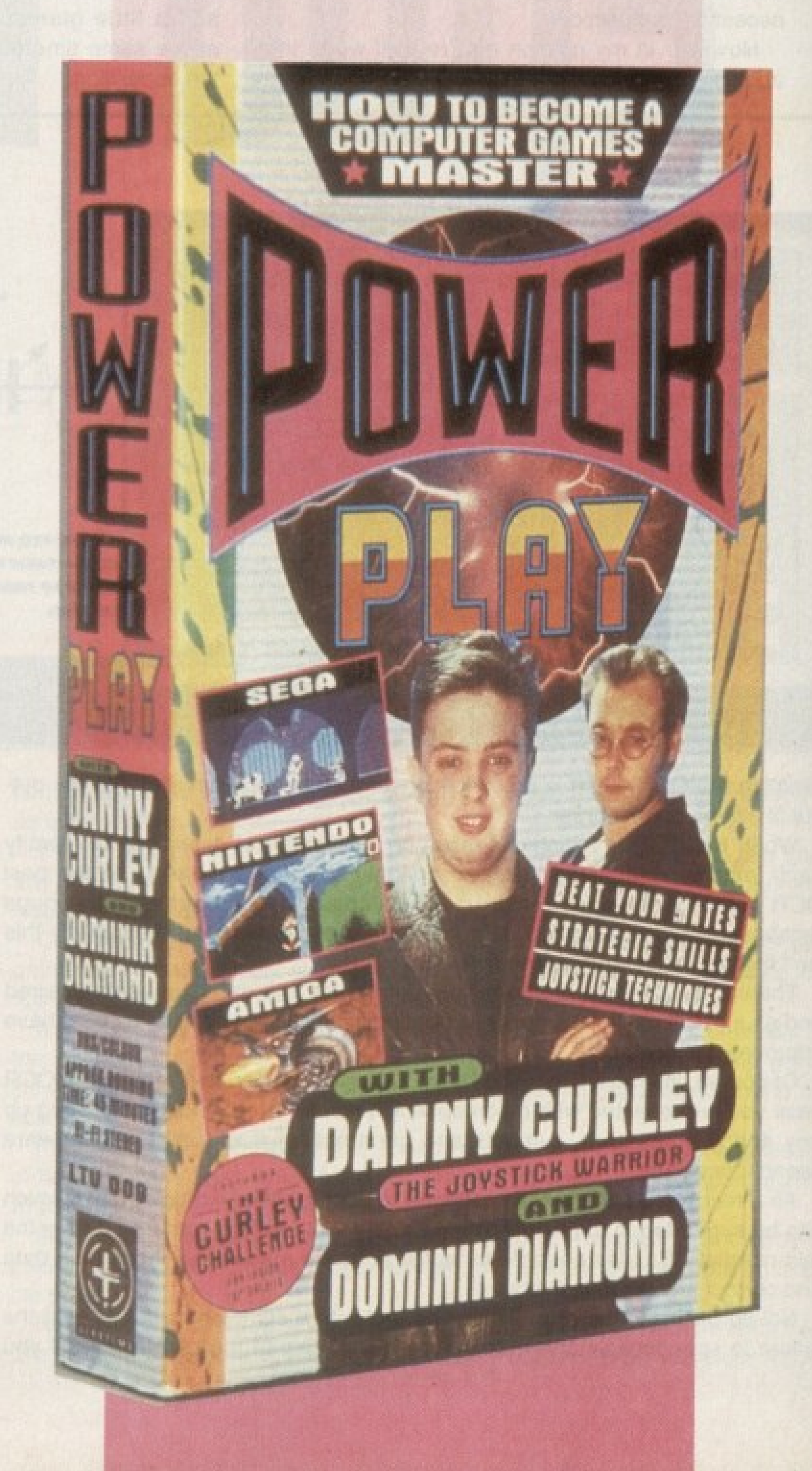
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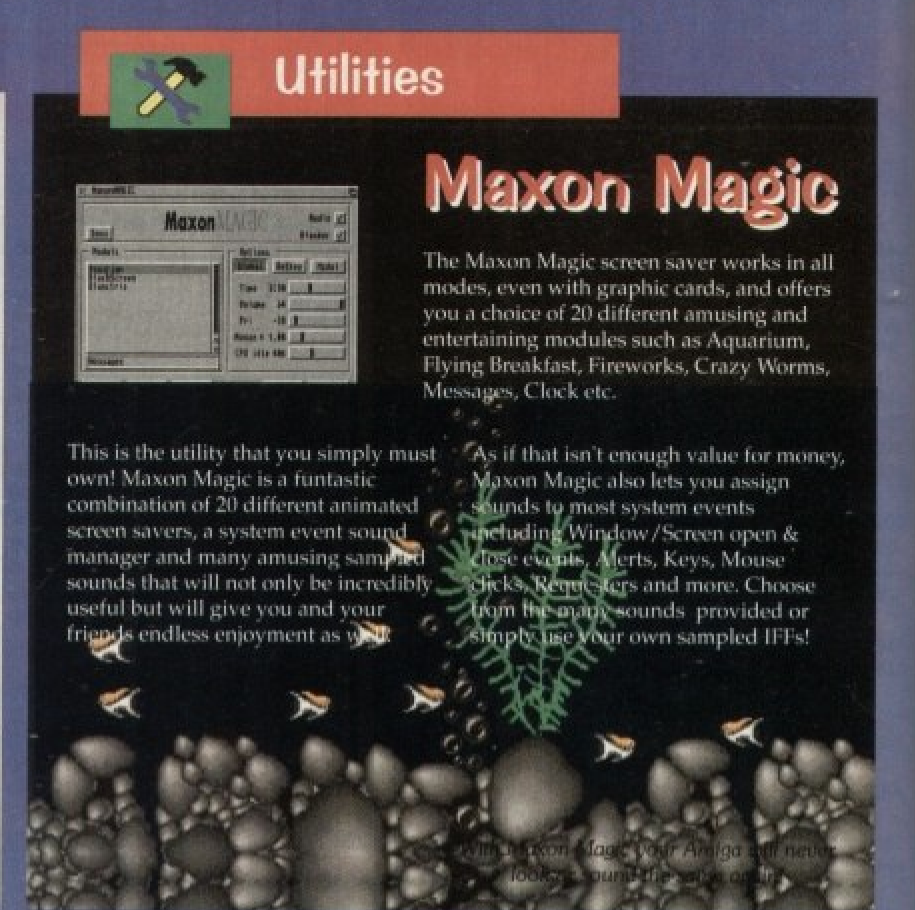
We are pleased to announce that HiSoft is now the authorised UK contact point for Oxxi's SBase 4 Amiga products (formerly known as Superbase).

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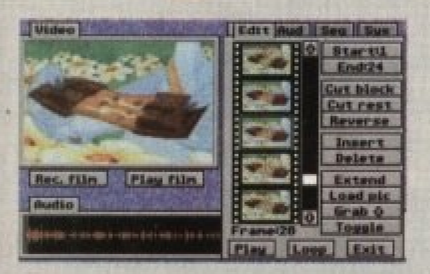




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VideoMaster AGA works on the A1200 and A600, connects via the PCMCIA slot for extra speed and freedom to use other peripherals, allows high quality stereo sound and supports HAM6 and HAM8 up to 640 x 512 resolution for stills.



ColourMaster

ColourMaster is a new electronic colour splitter which works in conjunction with VideoMaster for stunning colour stills.



Clarity16 is our premier sound sampler allowing rates up to 32KHz in 16 bit stereo and up to 48KHz in 16 bit mono on an A500; accelerated machines can handle faster sampling rates. The software provides extensive features including full edit control, a MIDI keyboard emulator, a sample sequencer, many special effects and FFT analysis. Version 1.5 has an up-to-date Workbench 3 look, in its own window and is fully compatible with faster Amigas.

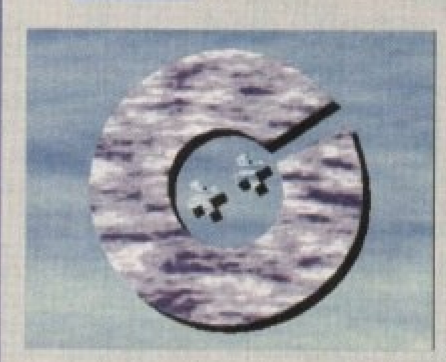


Megalosound is the new 8-bit, stereo, direct-to-disk sampler package; the software is packed full of easy-to-use editing features, special effects and extras such as the ability to print waveforms and sample information.

The package allows sampling up to 84KHz mono and 56KHz stereo to memory and up to 21KHz stereo to hard disk on an A1200. Supplied with a hardware volume control and an extensive 144-page manual, Megalosound is impressive value at only £34.95.

Programming

10011101
00110110
11110000



The standard C compiler for AmigaDOS gets a major upgrade for 1994; SAS/C Development System version 6.51 supports translation of C++ files with Streams and Complex libraries allowing you to write Object Oriented code.

The C++ translator is compatible with CFRONT Version 2.1 from AT&T.

There's an improved peephole optimiser, more efficient stack extension and structure return code generation.

There are many other improvements including an enhanced instruction scheduler for the 68040 CPU and the 68882 maths coprocessor, an improved profiler, a friendlier interface to grep, support for C++ within CodeProbe and more.

Workbench 3.1 include files are supplied.

Upgrades start from £59.95 - please call for pricing information.

SAS/C 6.51

Prices

Clarity16 new price	£129.95
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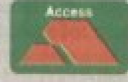
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Buckets of blood





I'm writing to say that I think the debate over pornography has unfairly left the other areas of concern in the shade. Yes, we need to know about the dangers, and yes, our police should have better ways to stop this going on, and I agree that the tacky pictures you printed were necessary to raise awareness (though only just), but what about violence?

Your raised the issue a long time ago in an article called Seditious Sprites, but it has been a dead area ever since then. I for one have a 15-year-old son who has seen some of the softer computer porn and it's not something I'm over-concerned about.

The images he has on disk are no worse than those in the tabloids, but some of the games he plays are much more worrying. There are some in which the blood flows by the bucketful, and characters scream very convincingly (I think it must be samples from actors), and these are his favourite.

It seems that the more violence the better as far as he is concerned, and the look of concentrated glee on his face when he plays some of these games is reminiscent of a sci-fi film noir.

Some of the language he is prompted to use when he "kills" his opponents has caused blazing rows, particularly when he's shouting something like "die, you b******!" at the screen.

This area of computer software might in the past have been less worrying, but now he wants a CD32 and one of those video cartridges so he can play CD movie games.

I worry that the games will be more violent than most films, and I don't want my son killing real people and enjoying it, even if they are only on-screen.

Shouldn't there be more said about computer violence? Parents such as myself would welcome more debate and some sort of guidance.

Mrs Gilly Weston, Cardiff

The question of excessive violence in computer games has never been taken very seriously because up until recently very few games contained anything other than cartoon violence. Any attempt to address the issue was met by comparisons to Tom and Jerry, and to be honest the comparison is a valid one.

However, as Video CD takes off, and CD-ROM titles come to contain more and more animation – much of it digitised from real life – the industry will have to look long and hard at its policy in this area.

James Ferman of the British Board of Film Classification told us two years ago that as soon as CD-ROM games contained real-life images, they would come under the remit of the censors and would be age rated.

With the current problems at the BBFC, however, and the pressures of classification on thousands of videos, never mind a whole new medium, it is difficult to see how the present system will cope.

Titles such as Voyeur on the CDi and Demolition Man should, by Mr Ferman's criteria, be subject to classification, but as the TV, movie, and computer industries gradually merge, the dividing lines will be blurred beyond belief.

We will be looking at this subject again in the near future, examining the extent of computerised violence and how parents and others can be assured that games are safe for their children, but for the moment the only guide you have is Elspa's new system and good old common sense.

When in doubt over a game's content, check the magazine reviews and, if possible, take a look at the software in the shop before buying it.

CDTV left out

Being a CDTV owner I am getting sick and tired over all the hype about CD32. Yes it is a great machine but what about its predecessor?

CDTV owners, like myself, have been left high and dry by Commodore. Whatever happened to the rumoured trade-in offers where existing CDTV owners could possibly upgrade to the A1200 or CD32?

All we are left with is a bloody expensive A500 with a CD drive shoved in a black box, and a rapidly diminishing software selection.

I have written to Commodore on several occasions regarding upgrades and trade-ins, and I am still awaiting a reply, so on behalf of all CDTV owners I would like to ask you:

1 Are there going to be any trade-in offers? If so, how much and when?
2 Are there any upgrades available to bring

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Imagine that

While reading your March issue, I came across your advert for a book called *Understanding Imagine 2* by the author Steve Worley (page 157).

However, on making enquiries at my local bookshop I was told that this book is not on record, but if I could give them the name of the publisher, they might be able to order it for me.

Could you therefore please let me have this information or who I should get in touch with so that I can get hold of it?

Peter Sheldon, Bradford

The advert you refer to was in fact a mini-review designed to remind new and old users of past products which are still good value for money, but we neglected to point out just how difficult the book is to come by these days.

Sorry folks, but as Imagine 3.0 is on the way, Steve is working hard at the next edition of the book to incorporate the new features, and as soon as *Understanding Imagine 3* is available, we'll let you know.

The previous edition has been discontinued for the moment, and we can only suggest that you look for a US advertiser in a copy of *Amiga World*, which can be found at some larger branches of WH Smiths.

a rapidly dating machine up to the current spec?
3. Is it worth ditching my CDTV and saving up to buy a PC which won't date as fast as my Amiga?

Finally, I would like to thanks Commodore for showing CDTV owners the kind of support we showed them when we bought the machine – not.

Mr G Pollard, London

We asked Commodore on your behalf, and the answer was that no such upgrade was in the pipeline. To be fair to Commodore, the rumours you refer to would have been just that, and no Commodore statement has ever actually promised an upgrade, even though they should really have done so.

Software support, as you point out, is dwindling, but there are still a lot of available titles, even if the vast majority of CD developers have moved lock, stock and barrel to the new 32-bit wunderkind.

You will find that as the year drags on the CDTV will be more and more a forgotten relic of the past, if it hasn't acquired that status already.

The idea in the first place was over-ambitious, and the attempt to kick start the CDTV market by releasing the A570 was an ignominious failure, mainly because it was expensive and most users saw it as old technology.

As for existing upgrades, the only one I know of in the UK is offered by ZCL (0543 414817) who will fit a 2Mb chip RAM upgrade, but it's not cheap.

Your final comment about PCs not becoming obsolete is a bit naive, considering the move the PC market has made from 8086 through 80286, 80386 (with the various SX options) to 80486, never mind the huge variety of conflicting sound, video, and interface standards, all of which will be obsolete when the Pentium machines arrive in force.

The Amiga has used only four CPUs and three chip sets in eight years (unlike the PC with its myriad Bios systems), and has retained a better record of downward compatibility than many PC fans would believe.

Ask a PC owner how many Windows programs were usable on the 286AT if you think Amiga owners are hard done by.



Got something to say through the pages of AC? Ezra Surf is our mailman, dedicated to reading your letters and selecting the most interesting for publication. Drop him a line at:

Ezra Surf's Postbag, Amiga Computing Adlington Park, Macclesfield SK10 4NP

Please don't enclose saes as Ezra just hasn't got enough paper to reply personally. He might also have to shorten your letters, so don't be offended if you end up getting the chop.

Amiga layouts

Firstly, I'd like to thank you all for being Amiga enthusiasts – it's nice to know that a leading Amiga magazine isn't run by a load of businessmen. However, if you are Amiga enthusiasts, prove it by switching to the Amiga to produce *Amiga Computing* when PageStream 3.0 is released.

Having received an information pack from Soft-Logik, PageStream 3.0 has about 60 new features which aren't present in Quark Xpress. With the superior multi-tasking Workbench 3.0 operating system, which far out-performs System 7, and the blinding speed of the A4000, I suggest switching to the Amiga.

I respect the fact that the manager of *AC* may not want to dump his beloved Macs, even though PageStream 3.0 is the best DTP package available, but get the message across nicely, and beg if necessary to use the superior Amiga – I'm sure you'll get your way in the end.

Imagine a network of Amiga 4000s all linked to each other, all running the premier DTP package. OK, I realise the Mac's childish operating system and one button mouse have a certain charm, but seeing as *Amiga Computing* is always ahead of the rest, wouldn't using A4000s and PageStream 3.0 give you that extra boost over your competitors?

Nathan White, Walsall

You aren't the first reader to suggest that we use Amigas to produce the magazine, and you won't be the last, but to suggest we switch from a program (Quark Xpress) with thousands of hours in a professional environment under its belt for a new and as yet untried package is nothing short of madness.


Quark Xpress: should we dump it in favour of PageStream 3.0?

Even if PageStream 3.0 were available on the Mac, it is highly unlikely that our art editors would be switched from a package they know to one which they don't until it had undergone at least six months of intensive testing by our systems manager. One bug in the wrong place could cost us tens of thousands of pounds.

In addition, Europress is a large group publishing over a dozen titles, all of which are laid out on the Mac, and we need the great degree of flexibility this offers us.

We need to know that if we have an art editor off sick or on holiday, we can switch one from an Acorn, ST, PC or Nintendo magazine to an Amiga magazine with ease. Are you suggesting that all these highly trained and highly skilled layout specialists are retrained in the use of a new program?

If PageStream 3.0 lives up to its press releases, we will have no hesitation in recommending it to anyone setting up a DTP or magazine business for the first time, but the program is a latecomer and can't hope to break into Quark's existing user base.

Sorry if you think this is in some way unpatriotic, but it makes more commercial sense than Amiga tunnel vision.

Disk feedback

Your Comment article, "A disk too far" in April's issue may well have been a valid point of view, but I felt it came across as an unnecessary apology.

Without doubt you have given away some quality software on CoverDisks over the years that I have been reading you mag, and even though some of it has been of no interest to me whatsoever, I still think that I get value for money.

As for the free distribution of programs on CoverDisks causing damage to the software industry, is this strictly true? It could be said that many of these programs are in fact past their sell-by dates.

For example, you said that Kindwords and The Publisher are worth £40, yet they are both advertised in your mag at £29.99.

It's always possible that these freebie CoverDisks may even help the software houses. I mean you usually give away early versions of programs, so when readers use them they may well decide to upgrade.

What about the offers of manuals that go with most disks? As most of them are around the £10 mark I would imagine this would generate a fair bit of income.

Anyway, please carry on with CoverDisks even if you have to cut back a bit on the top quality software and maybe go for more shareware stuff, and remember the old adage: you can please all of the people some of the time...

Vic Storey, Dereham

I think I should point out to the rest of the readers that we didn't pay you to write this letter. Yes, we will carry on with CoverDisks, and use commercial software if we can find suitable packages, but though you are correct in pointing out that a single software house will benefit from a disk giveaway (they wouldn't do it otherwise), the point made in our comment article was that the market as a whole might be suffering.

One manufacturer of, say, graphics packages might make a tidy profit out of a disk promotion, but the number of such packages sold in the six months after such a promotion must surely be minimal, and this can't help retailers or other software houses.

The policy of other magazine publishers is out of our hands, and the expectations of Amiga users likewise, but there isn't a single Amiga journalist (especially those who have to put these disks together) who wouldn't welcome the chance to drop free packages altogether.



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Paint problems from outer space

I have an Amiga A1200 with a 4Mb upgrade, maths co-processor and a 185Mb hard drive. I have tried to install Star Trek and Deluxe Paint IV which came free with my Amiga.

However, neither of them contain an install program so I have dragged all the icons onto a partition of my hard drive. Unfortunately, neither of the programs will run. I get an error message "unable to open your tool Deluxe Paint IV/Star Trek".

I have added to my startup-sequence the line:

```
Assign Deluxe Paint IV/Star Trek
```

and on checking them with SnoopDos, the following have failed – Ram Disk, C, Utilities, Rexxc, System, S, Prefs, WBStartup, Tools and Tools/Commodities.

What on earth can I do to get these to run?

A Bernascone, West Sussex

I find it very strange that neither of the programs you describe have installer programs for them. I know for a fact that Deluxe Paint IV uses the official Commodore installer. Ah, well!

What I would do is to create two drawers on a partition of your hard drive called DPaintIV and Star_Trek. I would then copy the contents of these programs into their respective drawers using the window menu and selecting show all files.

These programs use their own fonts so you will have to copy any fonts in the drawer to your hard drive's Fonts directory. The programs should then work successfully (famous last words).

If they do work you can then delete any unwanted directories from each drawer. Directories such as S, C, Libs, Devs and L can be deleted as files from these drawers are called from the hard drive system. I find the SnoopDos reports a little suspicious. If the programs fail to work after trying out the above procedure I would suggest you reformat you hard drive and re-install the system software (Workbench 3.0).

If all this fails I would advise you to send the products back to Electronic Arts and ask for copies that include the installer program.



DPaint IV should come complete with a hard drive installation program

A toothy grin

I wish to produce professional clip art, on teeth and related subjects. This comes in IBM and Macintosh formats. Will I be able to use either of these formats directly or failing that, what other hardware would I require?

I have an Amiga 500 Plus with extra floppy drive, GVP 42Mb hard drive and 5Mb RAM expansion. I also own an HP printer which I use to print graphics. I hope you can give me some advice.

R Parfitt, N Ireland

Let's clear up one point first. I presume you want to use clip art rather than produce it, in which case your best bet for clip art material is to check out the many PD (public domain) advertisers in *Amiga Computing*.

They normally contain a vast amount of clip art although if you want to find IBM and Macintosh artwork you will need

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The price of compatibility

I currently own an A1200HD and desperately wish to add CD32 capability. I seem to have two choices – wait for the much-delayed CD32 add-on for the A1200 or buy a standalone CD32 console and a suitable interface between the two machines.

I would be grateful if you could tell me what the likely release date for the CD32 add-on or console interface is to be and the cost.

I am fed up with waiting for the add-on, but am nervous that if I buy a standalone console I won't be able to buy an interface at a reasonable price – and that the add-on might subsequently have proved a cheaper choice. Any advice?

F Fitch, Ipswich

There are two possible options for CD32 and A1200 compatibility and at the moment only one of these has been realised. Commodore considered building some kind of interface connector that would allow the A1200 to plug in to the CD32 but apparently came across problems with the FMV and decided to drop the project. However, other hardware manufacturers have taken an interest.

The second option was taken up by Microbotics and consisted of building a specialised keyboard, external floppy drive, printer option and memory expansion unit that could be manufactured to fit around the CD32.

The keyboard fits to the CD32 via an external expansion device that connects to the CD32 SXI port. It may seem a bit extreme but you could sell your A1200, buy the Microbotics expansion module and start from there.

You can find out more information about the Microbotics expansion module by calling Indi Direct on 0543 419999. The keyboard will cost you £45.99, the external Zappo drive £49.99 and the SXI Expansion Module £139.99.



At last, CD32 comes of age with the Microbotics expansion module

Explode goes AWOL

I use an Amiga 500 with two floppy drives and a recently added hard drive. I have installed Maxiplan onto my hard drive but I cannot get past the "I need explode library v4" requester.

I remember this was mentioned in an earlier copy of *Amiga Computing* but I have extracted all the pages I wanted to keep from past magazines and destroyed what remains due to lack of space. Unfortunately, I did not keep the solution to the Explode library problem.

Could you kindly point me in the right direction either with instructions or with the date of the magazine in which the correction was given?

J Woodcock, Devon

All AmigaDOS disks such as Workbench and most commercial packages have the same structure. That is to say that certain directories and files need to be present on a disk for the programs to work.

When copying programs onto a hard drive it is not always enough to simply copy the main program across. Any other files that the program needs, which are invisible from Workbench may also need to be copied. In your case, explode.library v4.

Libraries are stored in the LIBS directory of your hard drive. The explode.library is in the LIBS drawer on your Maxiplan disk so you need to copy it across to the LIBS drawer on your hard drive.

Insert your Maxiplan disk into the internal drive – DF0, open up the CLI or Shell and type in the following:

```
copy df0:libs/explode.library to libs:
```

This should solve your problem.



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to purchase magazines specific to these computers.

Scouring the Amiga PD libraries, I was unable to find any clip art on the subject of dentistry (I presume this is why you're after clip art on teeth).

If you manage to get hold of clip art in IFF form, which is the image file standard for the Amiga, you should be able to load it into any reasonable word processor.

IBM and Macintosh-related clip art may need to be converted to IFF if you want to use it so you will need some kind of image manipulation program such as AdPro 2 or MorphPlus.

Remember, most clip art is two colour only – black and white. Colour clip art is available but is normally only AGA-compatible so you would need to own an A1200 or A4000.

If anyone has any knowledge of clip art related to teeth, write in to ACAS and I'll pass the information on.

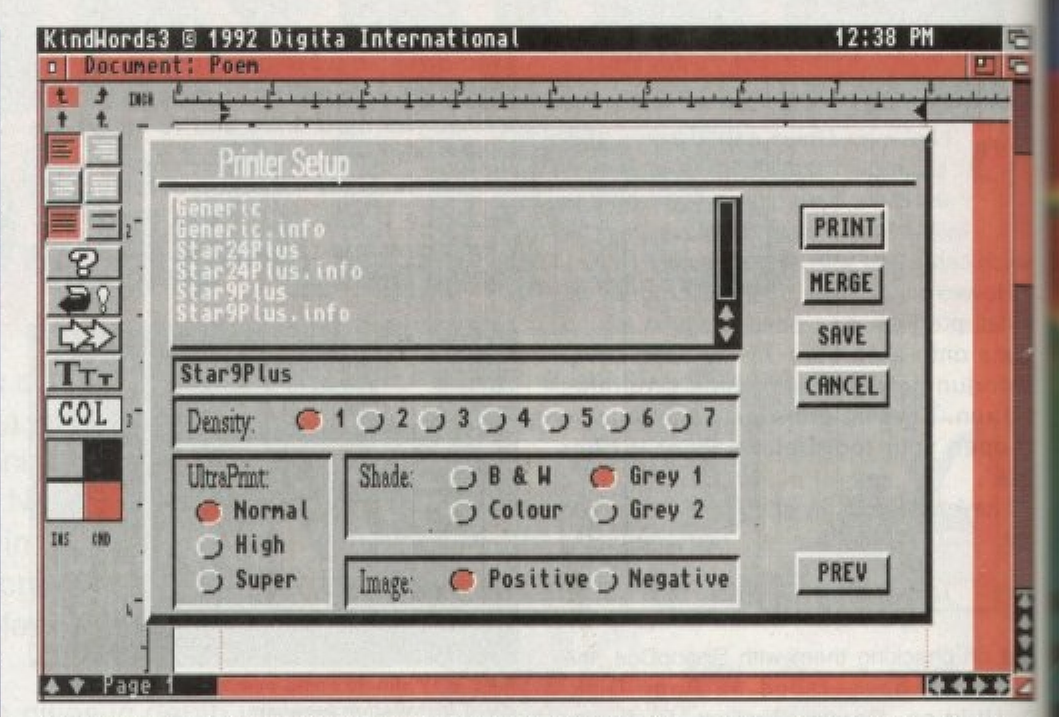
You got problems too? Then drop a line to Amiga Computing Advice Service, Europa House, Adlington Park, Macclesfield SK10 4NP and we'll move heaven and earth to help in these columns. But sorry, we cannot reply personally, so save those SAEs.

Missing set-up

Having just purchased the April issue of *Amiga Computing*, I am somewhat disappointed to find that the copy of KindWords 3 on the CoverDisks does not perform as suggested in the magazine.

True, you offer a very good word processor but there appears to be no way to print graphics from it as you cannot access the window described on page 22 (Printer Setup). Please tell me if I have overlooked something or if my assumptions are correct that the CoverDisk is not as complete as implied. I await your response with interest.

A Skipper, Lincoln



Use the Prev and Next buttons to switch between the printer setup and print document requesters

There have been quite a few letters of complaint about the missing Printer Setup, but I am afraid you are all wrong. My first piece of advice is to read the CoverDisk instructions fully. Take a look at the annotated diagrams on page 22. Look at the top picture and locate the button labelled Next. When you click on this button, the Printer Setup requester will appear.

Likewise, clicking on the button labelled Prev in the Printer Setup requester takes you back to the Print Document requester. 'Nuff said!

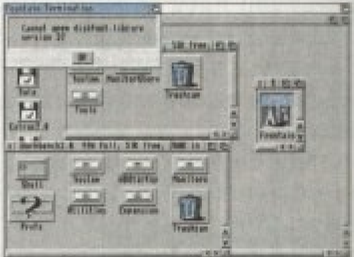
A fountain of worry

I wonder if you could help a novice with the following problem? I use an Amiga A500 Plus with an extra floppy drive and a Star LC20 printer. I boot with Workbench 2.04 and am trying to get the Fountain program to run off the Extras disk.

When I click its icon all I get is the message "Cannot open diskfont.library 37". I have tried using the Diskfont library from off the supplied Fonts disk but it is the same.

What am I doing wrong? I know my way around the keyboard but as I say I am a learner so could you explain how to cure this problem in a simple way?

S Flynn, Newcastle



Make sure you are running the correct version of the Diskfont library if Fountain is to load correctly



According to Commodore's technical support chaps and chapesses you will find the information that you need in the Workbench manual page C-2 entitled Installing Fountain. However there is a mistake.

Boot up your Amiga with Workbench 2.04 and with the AmigaFonts2.0 disk in DF1. Open the Shell and type in the following:

```
copy >NIL: df1:libs/diskfont.library to libs:
```

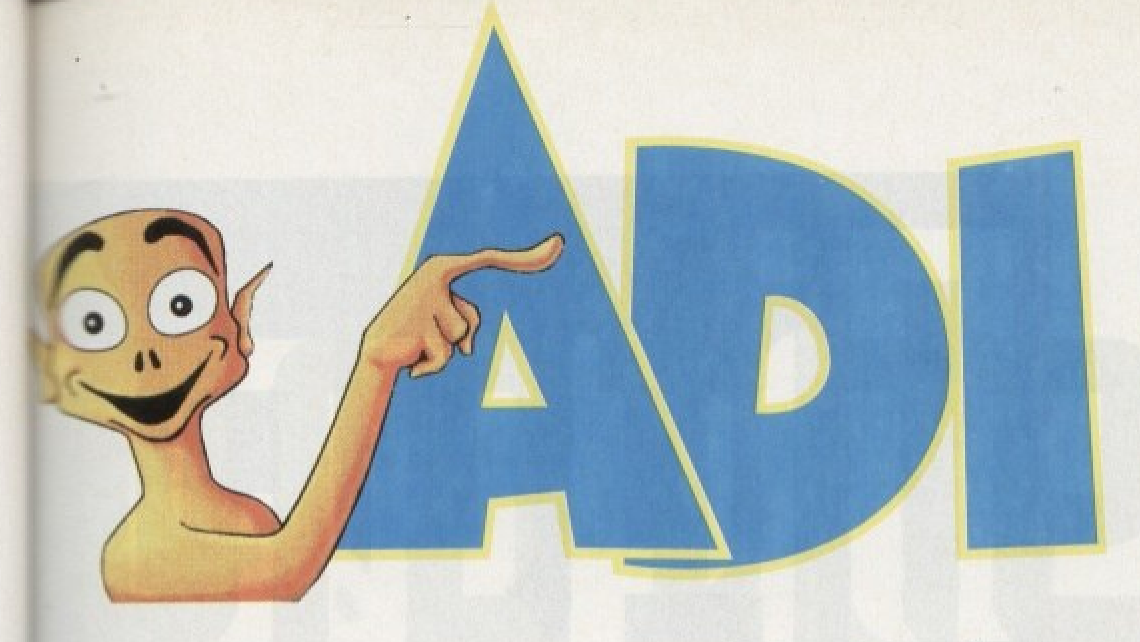
This will copy the Diskfont library v37 over to your Workbench disk. The reason that v37 is not on the Workbench disk is simply because there was not enough space for that and the lesser version Diskfont library.

To enable the fonts directory on the Fonts disk you will need to add the following command to your User-Startup in the S directory of your Workbench disk:

```
assign FONTS: AmigaFonts2.0:fonts DEFER
```

The Defer option tells Assign not to request the AmigaFonts2.0 disk until the system needs it. Your system will then access the disk every time it needs to access a font file.

Now when you run Fountain from the Extras disk it should load without any problems.



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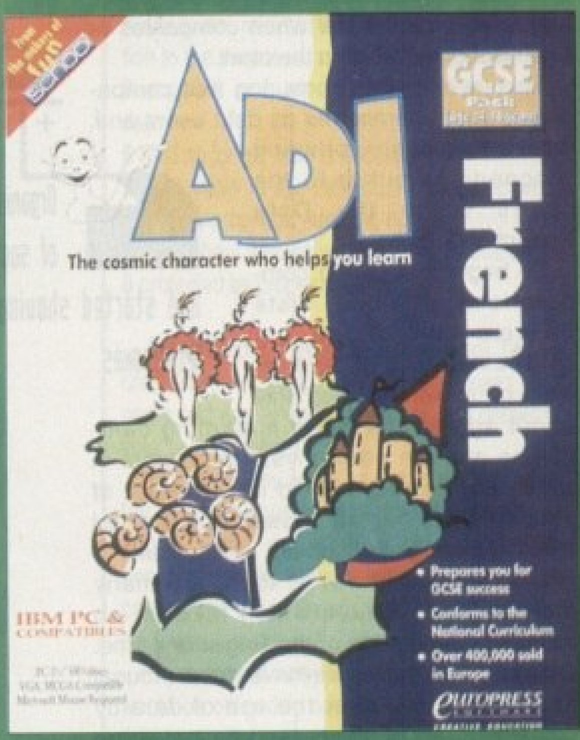
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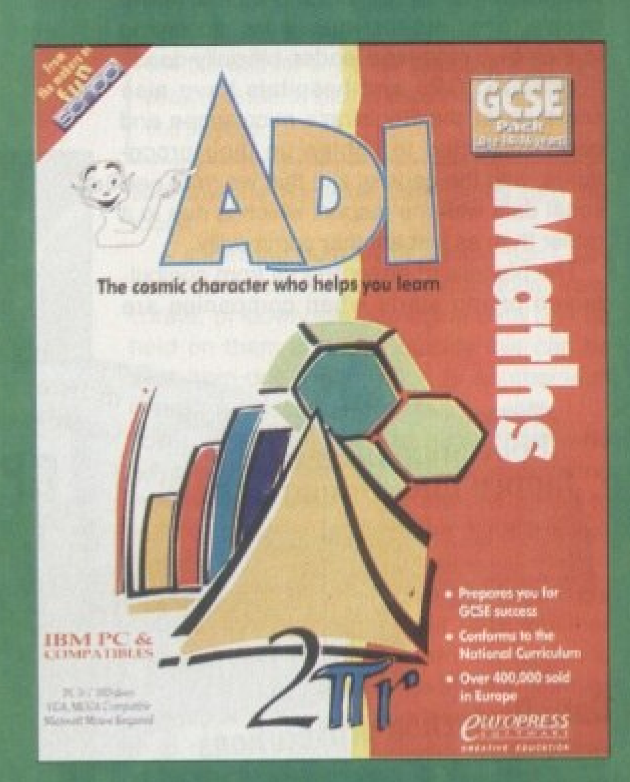
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As the information revolution gathers pace, the amount of data about each other we store on computer increases every day. Stevie Kennedy talks to the man who regulates its use

The Data Protection Registrar, Eric Howe CBE, is the man who watches Big Brother, and were it not for the efforts of his busy offices in Wilmslow, Cheshire, Orwell's nightmare figure could be much more than just a fictional vision of a fictional future.

Since the office was set up to administer the Data Protection Act of 1984, it has grown in stature and profile from an organisation whose aims few could understand to one of the most important watchdogs of the digital age, employing over 100 staff and answering thousands of enquiries every year. Last year alone, a record 5,068 complaints were received from individuals concerned that data on them was being misused.

The role of the registrar is to monitor the extent and use of data held on computer under the terms of the Data Protection Act, and to enforce the law when companies or organisations over-step the mark.

This involves both ensuring that companies register themselves as data users and, where necessary, bringing proceedings either to the courts or to the Data Protection Tribunal.

> Organisations we'd never heard of suddenly got our addresses and started shoving garbage through our letterboxes

To begin with, when computerised mailing lists became one of the big growth industries of the 80s, most of us were worried only about aggressive direct marketing campaigns and the often mysterious ways in which organisations we'd never heard of suddenly got our addresses and started shoving garbage through our letterboxes.

These days, however, there are many more serious issues which take up an increasing proportion of the Registrar's time. Lately, for example, we have seen tribunal and court cases over the use of data by policemen, accountants, and cases where people found out that they were, according to their own mortgage lender, officially dead.

Schools, GPs and hospitals have also come under the Registrar's microscope and been instructed to tighten up their procedures, with the general aim that we treat personal data with the respect which is due to it rather than as just another commodity.

The process of protecting us from computerised prying starts when companies are required to register as data users – a status which can apply to any organisation which keeps personal details (just a name and address are sufficient) on computer concerning living individuals.

Upon registration, the uses to which data will be put must be clearly stated, and data must thereafter be used according to general data protection principles set down by the Act.

On the other side of the coin, individuals have a right under the Act – a right which the Registrar will enforce by law if necessary – to know of all data held on computer concerning his or her personal details, the so-called subject access right.

If the information is inaccurate, you can have it corrected or deleted, and claim compensation for any damage or distress caused in such cases or by the unauthorised disclosure of information.

To find out what information, say, your bank holds on you, simply get in touch with the Registrar and find out the name of the person who the company has designated as their Data Protection Officer. Next, write to that person using words similar to these:

"I wish to make an application under my right of subject access as covered by section 21 of the Data Protection Act (1984). Please supply me with any and all information which you hold on me and to which I am entitled, or confirm that none is held."

The letter should be sent by registered post so that in the event of non-compliance you can prove that the company failed to respond within the statutory time limit of 40 days. A fee of up to £10 can be charged by the data holder, so it is always best to check before writing and to include the correct pay-



Numerous test cases have resulted in success for data protection

brother

If there's a mistake on a computer about you...

What is...

data ('deɪtə, 'dɑːtə) n. 1. a or facts; information

protection (prə'tɛkʃən) protecting or the conditio something that protects

An introduction to The Data Protection Act

Information is available to anyone who needs it, so if you have doubts, you know what to do about them

ment, if any. If the company fails to reply, or you discover that data is either completely wrong or inaccurate, the Data Protection Registrar will help by forcing the company to provide the information or change it where needs be.

STIFF FINES

The Registrar can't arrest or imprison under the Act, but stiff fines can be levied, or the company can be de-registered, which stops them processing personal data and effectively puts them out of business.

Such sanctions will usually put the fear of God into even the most reluctant organisation. Test cases heard either in the courts or the tribunal process have, since the Act was passed, clarified, and in some cases strengthened the application of the Registrar's powers.

Cases involving direct marketing firms are the most numerous, perhaps, but there has been a gradual spreading of the Act into new areas.

For the future, as computerised data use becomes more and more an everyday problem, probably the most limiting factor is that from one office comprising mostly of staff answering telephone calls, the Registrar is expected to monitor the whole of the UK. In addition, public awareness is low, and few people realise just how strong are their rights in this area.

This was greatly improved by an advertising campaign in the early part of 1993, and by the increasing suspicion of people that someone somewhere knows too much about them, but there's still a long way to go. It is estimated that about a quarter of companies who are required to register still have not, and without an enlarged staff it is difficult to see how the Registrar can quickly turn this round.

A surprising number of people don't fully appreciate just how much extraneous, inaccurate, or downright damaging data can be held on them and how quickly this can be sent from one organisation to another with sometimes disastrous results.

We've all heard stories about those who were listed as dead, or whose credit rating was wrongly altered, but the few cases to reach the media are only the tip of the iceberg.

Just about everything we do these days can be affected by computer data, whether financial such as when a loan application is turned down for no reason we can fathom, or social, when everything from criminal records to ex-directory phone numbers can go astray in the electronic jungle.

In an age when the world is becoming one huge information network, it is only through the efforts of public watchdog bodies such as the Registrar that the rights of otherwise powerless individuals can be protected.

Eight golden rules

Every registered organisation must abide by the principles, laid out in the Data Protection Act, which govern the way in which information can be collected, stored, and used.

These are fairly broadly-stated, but ignoring or breaking them can result in legal action, and if an organisation has done so in relation to your own details, you can make them pay. All personal data held on computer systems must be:

1 collected and processed fairly and lawfully
2 held only for lawful purposes described in the organisation's register entry
3 used or disclosed only for those purposes or in a manner compatible with those purposes
4 adequate, relevant and not excessive in relation to the purposes for which they are held
5 accurate and, where necessary, kept up to date
6 held no longer than is necessary
7 accessible to the individual concerned who, where appropriate, has the right to have information about themselves corrected or erased
8 protected by proper security

For example, if you pay your Council Tax by credit card, the local authority might keep your name address, telephone number, and details of your card on record.

However, they would be hard pressed to justify keeping your card details, or even your phone number on record, as neither is strictly necessary for the maintaining of a record of tax payers, and would therefore fail to satisfy principle four.

If you moved away from the area, the council would be obliged to remove all personal details they had collected on you, thus adhering to principle six, and the council would not be able to use the data for any other purposes, such as passing details to another department for a second purpose.



The European angle

An EC directive issued in 1990, and revised in October 1992 has laid down the basis for a Europe-wide data protection consensus by which the laws in force in the member countries can be harmonised and better provisions be made for cross-border data transfer.

In particular, though, all have agreed that personal privacy is the most important concern. This will be balanced against the need for freedom of expression and a free press, and matters of public interest such as criminal investigations, but the drift back towards putting ordinary people's interests on a level footing, if not better, with those of big business can only be good news.

Arguments are going on at European level over several sticking points, for example over how exempt the press should be and the power of the EC Commission in this area, but we should see agreement some time next year and a new Data Protection Act in 1997.

Let's hope they get it right, and the balance between privacy, personal rights, and the interests of a free press is struck at a sensible level.

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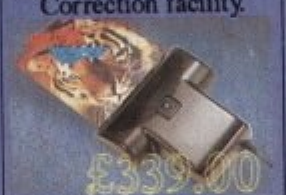
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U241	Winemaker	Database for wine enthusiasts
U242	Budgets 1.34	Accounts Manager
U243	D-Solve	Crossword-complete with two crosswords
U244	Colour The Alphabet	Educational spelling game
U244	Lockpic V2.0	Uncover copy facilities
U245	Relo Kick V1.4	Latest D Grader for A1200
U251	Procad Electroid	Circuit design drawing program
U252	Dividends Winner	Work out winning lines
U253	Assassins	Graphic utilities compilation. Enhance your Amiga

DEMOS

D058	Enterprise leaving dock	Famous animation
D075	Girls of sport	Pretty shots of talented girls
D148	The Run (1 meg)	T. Richter's car-chase animation. Good
D166	Star Trek Animations	Anims. of USS Enterprise
D177	Star Trek Animations	Agatron no.17 More like above. Good
D271	Odyssey (5 disks) (N)	Excellent space adventure animation
D278	Desert Storm	Information on Gulf War
D280	Jesus on "E's" (2 disks) (N)	Excellent rave music
D282	How to skin a cat	Amusing demo
D287	Calendar Girls	Slideshow
D312	Rave Vision	Rave music & Graphics
D313	Techno Warrior	More of the same

MUSIC

M038	Hugo's Eccentria (N)	Nine house mixes
M062	Random Access (N)	Four songs including Art Of Noise
M102	No Limits (2 Disks)	Quality music compilation
M104	Cybernex	Excellent music compilation
M150	Doop	Classic by the Beat Master
M151	Motiv-8	More catchy tunes
U244	Sound Tracker Samples (4 Disks)	100's of sounds for sampling
U249	Sound Effects	Different samples for music making
U062	House Samples	Drums & Synthesisers etc.

GAMES

G005	All New Star Trek (2 drives, 2 disks)	USS Enterprise classic. Best one
G010	Breakout	Classic bat & ball game
G011	Blizzard	Horizontal shoot-'em-up. High quality
G014	Adventure Solutions (2 disks)	Loads of hints of commercial games
G019	Dungeon Delver (2 disks)	Difficult adventure quest
G021	Demolition Mission (1 meg)	Similar to Balloonacy, good fun
G023	Electronic Train Set (1 meg)	Construct own train set
G043	Learn and Play 1	Good for the kids. Blackboard maths, etc.
G044	Learn & Play 2	More fun for the kids
G047	Lettrix (N)	Tetris game involving letters
G053	Mayhem	Brilliant shoot-'em-up
G065	Pixie Kingdom (2 disks)	Tricky adventure game. Good
G071	Return to Earth (1 meg)	Space adventure
G086	Wraithed One	Good general knowledge quiz
G102	Simulation 1 (1 meg)	Recommended. 5 games including Metro
G109	Wheel of Fortune	TV Quiz, computerized
G124	Napoleonic Warfare	High-quality simulation
G143	Card Shop	Well presented card games
G149	Raphaels Revenge	Difficult platform adventure
G153	Growth	Destroy an expanding brain
G155	Mission X	Quality shoot-'em-up
G157	Quadrix	Difficult puzzle game
G162	Storyland 2 (N)	Create a childrens adventure
G165	Super Skoda Challenge	Car racing game
G170	Amos Criket	'Owzat!
G171	Top Secret	Quality platform game
G175	Whizz Wall	NEW Wizard shooting game
G176	White Knight	NEW Excellent shoot em up game
G180	Tank Attack (N)	World War 2 Simulation
G197	All Rounder (N)	Cricket simulation game
G204	Super League Manager	Manage your own Soccer team
G207	Flagcatcher	Find the flags. Very addictive
G208	Grand Prix Simulator	Excellent
G209	Games Galore Ten (N)	14 excellent games
G214	Parachute Joust	Try & catch a parachute
G215	Battlements	Hunchback game
G217	Act of War	Excellent strategy game
G218	Roulette	Casino Classic
G219	Space Rescue	Guide Spaceship th[illegible]gh Terrain
G220	Sub Attack (N)	Also landmine + bomber
G221	Revenge of the mutant camel	Shooting game
G222	Neighbours adventure	(2 discs) Bring Paul Robinson to court
G223	Wizard Wars	Graphics Adventure
G224	Stratigic Games	3 excellent games
G225	Addams Family Quiz	Quiz on cult TV programme
G226	Dual	2 player shooting game
G227	Assassins 24 (N)	4 games including 3D Maze
G230	Assassins 27 (N)	Addictive card games
G231	Assassins 28 (N)	These include Dr.Mario, Invaders 2 & Mad Bomber 2
G240	Assassins 37 (N)	Ghost Ship, Claktris etc
G241	Assassins 38 (N)	1 on 1 baldy & transplant
G243	Tetren	Excellent Tetris clone
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G245	Iron Clads (2 disks)	Graphic adventure
G247	Quiz Master	Quiz which includes Editor
G248	Assassins 40 (N)	10 Puzzle Games
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G301	Sector 1	Excellent game
G302	Micro Market	Stock exchange game
G303	Strike Ball	Amos written baseball type game
G306	The Funhouse	3 games including Enigma
G307	18th Hole (2 disks)	Excellent golfing game
G308	Gush	Very similar to pipeline
G310	Zalycon (2 disks)	Space shoot'em up
G312	Rasta Bike	Backgammon & Dungeon flipper
G316	Blood Runner, Monaco	Patience card game
G319	Mega Race And Wacky Rabbit	Compilation
G324	Psycho Santa	Waggle your joystick with this festive disk
G325	Mister Men Olympics (2 disks)	Excellent game for disks as reviewed in Amiga Computing
G326	Wibble World Giddy	Really good platform game
G327	Tetris Pro	Tetris game with exceptional variants
G328	Calculus Combat	V. Good missile command type game
G330	Friday 13th	Pretty Gruesome Platform Game
G331	Jigsaw (2 disks)	Puzzle Game
G332	Dithell in Space	Cutesy little space demo game
G334	Crazy Sue 2	Popular platform game
G335	Wotitsname (N)	Children's spelling quiz
G336	Fortress	Excellent demo game

A1200 ONLY

U235	Sleepless Nights	Compilation of A1200 utilities
D285	Fairlight	29 meg of graphics on one disk
D286	No point of sale	Stinning French demo
D288	Revelations	Photo realistic slideshow
D289	State Of Art	Famous quality demo
D290	Raving Mad Me	High quality music video
D291	Lethal Exit	Stunning demo
D294	AGA Swimsuits (5 disks)	IFF 256 colour pictures use with DPaint etc
D300	Technotrack II	More rave music
D301	Retina	Excellent Vector film demo
D305	Utopia	A1200 slideshow
D310	Nigel Mansell	AGA slide show
G321	AGA Klondike (3 disks)	Excellent patience card game
G322	Giger Tetris	Tetris clone
G323	U Chess	Brilliant chess game

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Discs for all



CD-ROM storage could transform the way we use the Amiga, Stevie Kennedy looks at an offering from First Choice Computers

The CD-ROM format has had a colourful history in the Amiga market. CDTV sparked it off before promptly dying, followed by the A570 which suffered a similar fate, and now we have the more successful CD32. However, unlike in the case of PCs and Macs, there has never been an official Commodore CD-ROM drive for use with all Amigas.

Taking Frank Munkert's PD filing system, AmiCDROM v1.4, and adding a user-friendly installer with plenty of additional utilities, First Choice have put together a CD-ROM package which any owner of a SCSI interface can plug straight into the Amiga.

To avoid the usual hassles with new filing systems, installation is more or less automatic, and after a few minutes of head scratching over SCSI ID numbers, most competent users should be up and running.

Mountlists are created automatically, and the only complication occurs when the SCSI host being used is not directly supported by the installer.

Five cards – Commodore's A3000, A2090, A2091, and A590, and GVP types – are catered for, but if using another card such as IVS or ICD, the user must supply the device name, which could terminally confuse the non-SCSI literate among us.

Setting termination and SCSI ID numbers is neatly taken care of using a row of easy to reach jumpers on the rear of the drive casing, removing at least one traditional area of hassle. In most cases, therefore, installation should be relatively quick and easy.

The CD unit supplied is an internal Toshiba of the type usually seen inside PCs. Manufacturers' claims aside, it is no faster than one would expect of a CD-ROM drive, managing around 140 to 150k per second on large files and under 100k per second with smaller files, but this is the norm for the medium.

Access times of over 200ms (as opposed to hard drives with under 20ms) mean that CD-ROM discs drag their heels when used with Workbench, but again this is no worse than CDTV. With its four times oversampling, audio quality won't impress hi-fi buffs, but for most computer uses it is perfectly adequate.

The two audio player programs included on the setup disc are PlayCDDA, a cranky CLI utility, and the excellent Workbench-driven JukeBox player.

PlayCDDA uses the Amiga's audio channels and plays music via the monitor speakers, which is not a great listening experience, while JukeBox uses only the headphone socket found on the front of the drive from where sound can be passed to an amplifier. There's also a CD ripper program to grab samples from CD at up to 44kHz quality, but the second disk will be of most use to non-musical users. It contains a variety of utilities to enable the unpacking of ZIP and ARJ archives (both very common on PC CD-ROM discs) and the viewing of GIF graphic files, among other formats.

FORMATS

Most ISO 9660 standard CDs currently available include images in GIF or one of the other formats popular outside the Amiga world, and viewers for these types are most welcome.

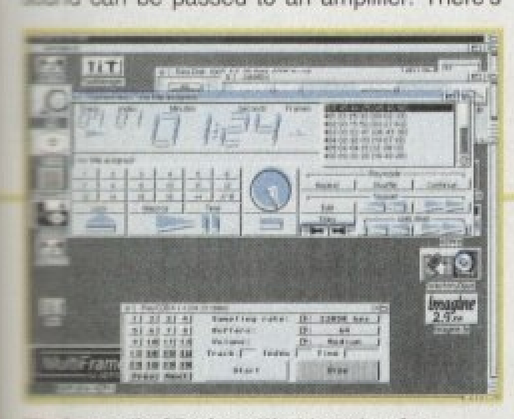
The file system will read Mac HFS and Rock Ridge International Protocol as well, so there should be plenty of material to choose from.

Users aren't stuck with data files, however, and it is possible to play a great many CDTV titles from the drive. You can't auto-boot from CD0: (the device name the drive works under), but running CDTV programs from Workbench is as easy as running them from floppies, and often a matter of clicking on an icon. Some CD32 games will also run from the drive, but in most cases only if it is plugged into an AGA machine.

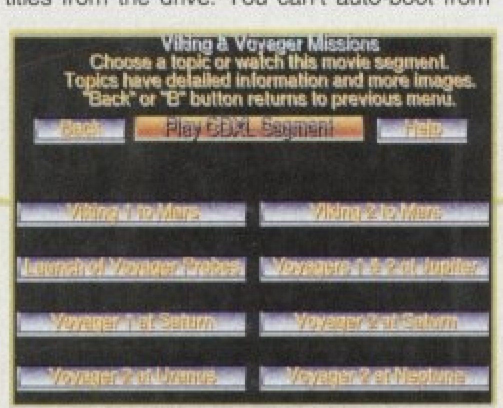
In all, this is a tidy package and a well thought out CD-ROM bundle. Despite the potential for chaos when attaching an internal SCSI device, the on-disk documentation and the Toshiba manual should see the average user through, and once set up the device becomes a steady and reliable AmigaDOS drive.

I would have liked a more exhaustive Amiga-based manual, and a help section for those new to SCSI and CD-ROM, but the friendly installer removes much of the need for these.

Given the right audience – multimedia, DTP, and music – this solution to the CD-ROM problem should do well.



Playing audio CDs from Workbench using the two supplied player programs



Much of the old CDTV software doing the rounds will work with the CD-ROM drive



The bottom line

Ease of use 7
Implementation 8
Value for money 8
Overall 8

Product: Toshiba 4101 CD-ROM pack
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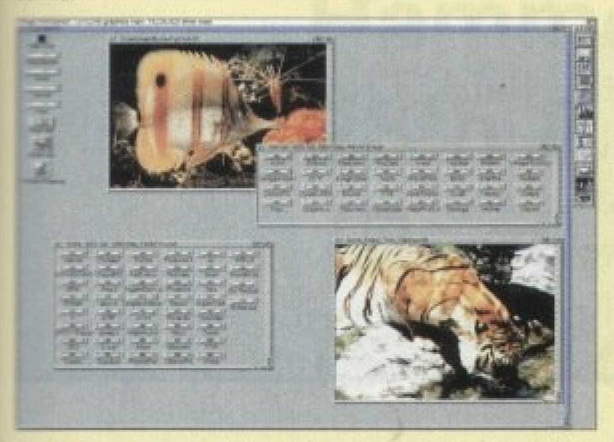
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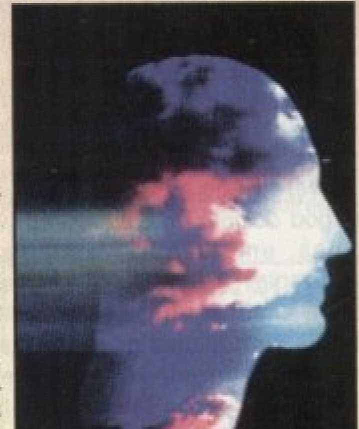
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Computers are used constantly in modern exploration of space, and Distant Suns v5.0 claims to be the perfect companion for a starry night. Simon Clays stares through the viewfinder

The stars, the planets and even the moon have long been a source of terrestrial fascination to the human race. Early civilisations, from the most sociologically advanced to the most scientifically retarded, stared with wonder at the night sky.

They revered bodies like the sun and moon as god deities, and, even from very early times, embraced a relationship between the solar system and ourselves.

While the night sky has changed little, humankind's perspective of the universe has drastically altered. The earth is no longer flat, the sun no longer revolves around our tiny dustball, and the moon (alas) isn't made of cheese.

More importantly, studying the night sky no longer affects the gravity of your pocket to astronomical proportions. A cheap refracting telescope costs very little, and computer power has meant the home enthusiast can calculate movements and distances using something humble – like a 68000 processor.

HEAVENLY

With all this computational power available it comes as some surprise that there's very little software available, short of shareware and PD, that covers this area.

However, back in 1989 Virtual Reality Laboratories unveiled Distant Suns. Since its inception, programmer Dave Schreiber – himself a keen astronomer – has sought to combine accurate data with colour graphics in a bid to recreate the heavens inside the confines of a monitor.

The latest modification, v5.0, allows the user to view the heavens in glorious 256 colour for the first time. Before any of this can take place however, you're going to have to install Distant Suns on to your machine.

Anything lower than an A1200 carrying a 68030 will take in the region of 40 minutes to install to, so you'll have plenty of time to brush up on your constellations.

Once the program has completed its installation, re-booting displays whatever you've set up as the default. It's probably as well to configure Distant Suns in Planetarium mode, which displays the whole of the northern hemisphere, and by this virtue is an excellent base to begin any work.

Displaywise, Distant Suns contains all stellar activity down to a magnitude (brightness) of 5.8 in its Core Star database. However, in addition to these 4,000-odd stars, Distant Suns contains a second database composed of small files.

These allow you to access more accurate, compressed regions of the sky, and make more detail available, while preserving both RAM and hard disk space.

But by far the most impressive feature is the Hubble Guide Star Catalogue. Originally constructed to allow astronomers to find stars which are close to brighter objects in the night sky, the Hubble Guide contains over 16,000,000 objects down to magnitude 16.

To give you some idea of the power of Distant Suns and its ability to display objects our own sun serves as a fine example. Placed at ten parsecs, our own sun would shine at a measly 4th magnitude.

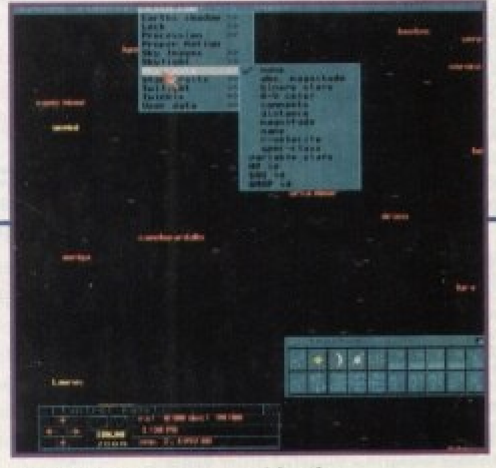
Comprehensive

Conversely, sixteenth magnitude objects can only be seen by moderately powered telescopes and are two or three times beyond the range of human eyesight.

Found within the protective packaging that accompanies Distant Suns is a comprehensive manual that has as much to

Stars in your eyes

Name	Constellation	Magnitude
Sirius	Canis Major	-1.4
Arcturus	Bootes	-0.1
Vega	Lyra	0.0
Rigel	Orion	0.1
Capella	Auriga	0.2
Procyon	Canis Minor	0.4
Altair	Aquila	0.8
Aldebaan	Taurus	0.8
Betelgeux	Orion	variable
Antares	Scorpio	0.9
Spica	Virgo	1.0
Fomalhaut	Piscis Australis	1.1
Pollux	Gemini	1.2
Deneb	Cygnus	1.3
Regulus	Leo	1.3



Distant Suns uses a combination of menus and icon-controlled toolboxes



Osiris to the Egyptians or Orion to the Greeks, it is still one of the most spectacular sights in the western hemisphere

way about the science of astronomy as it does about menus and icons.

The manual's layout serves as an extremely intuitive way of developing both skill and knowledge of the program. Splitting the different aspects of stellar observation into various projects, Distant Suns uses a clever tutorial system to educate the user.

And because of this depth, even an accomplished astronomer will feel more settled using the tutorials as a guide for a while.

After a few very basic operations understanding the fundamentals of astral and menu mechanics, the user is left to explore the rest of the galaxy at the flick of a page.

Everything within Distant Suns is mouse and menu driven, although in v5.0 an icon-driven tool palette has been introduced to grant extra speed to the options more highly used.

Time travel

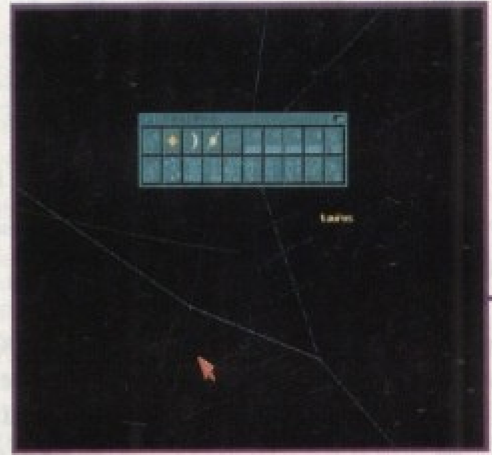
Accessing your favourite objects, or, finding new features, can be achieved in a variety of ways. Because Distant Suns has over 14,000 years of galactic activity stored within its core (dipping as deep into the annals of history as 4,500 BC, and soaring far forward into the tenth millennium), you can witness any given event.

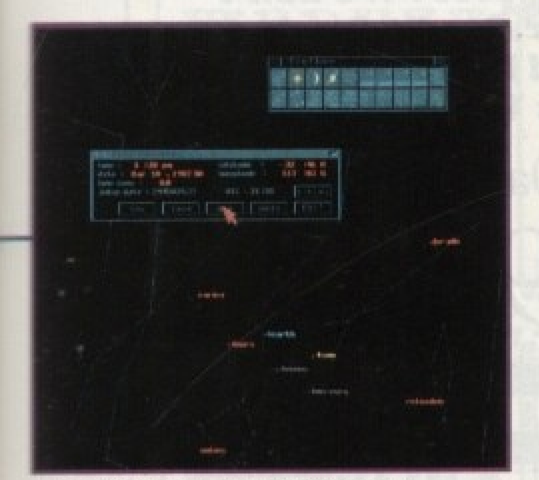
The most accurate and concise method of finding objects at a given time is by using the environment feature. This not only allows you to type in the exact date and time that you'd like to witness, but also the ascension and declination of the object (the system astronomers use to pinpoint objects, which is analogous to latitude and longitude).

Taking matters one step further, you can also change your local co-ordinates using the azimuth and altitude settings. But, what does it mean in layman's terms?

Basically if, for example, you wanted to witness Orion as its two red giant stars lumbered into the Giza sky above the pyramids of 2,500BC, or witness the planetary alignment of the eighties (which was incidentally meant to have caused the destruction of Earth), you can, by simply entering the correct information into the environment bar.

Once you've accessed a particular zone of space you can zoom or pan out of any given area. Again this is accomplished by using the depth of field option from the menu, or using the newly-implemented icon bar.


The proper motion option allows you to track the movement of the stars


Using the environment menu you can choose to view any astronomical event from history

There are also a full range of other facilities which will fascinate enthusiasts and novices alike. Distant Suns allows you to plot the motions of the stars, and track their movements using the star trails gadget.

While performing such a task, the user can display the constellations as they would appear in the night sky, add lines to aid their recognition and print every star's name on-screen.

Stars can also be centred on the monitor and all relevant information, such as size, distance, luminosity and in some cases a picture obtained.

Taking matters one step further, the program includes a facility which allows you to replicate dawn, dusk, and even lets you distort your view with a city glare effect.

As an added treat, and the author encourages turning out the lights, you can ask the computer to simulate the twinkling of the stars.

Deep space

Distant Suns also encompasses facilities to view deep space objects like star clusters, nebulae and galaxies. Included on the menu bar is an option to turn on the NGC (New General Catalogue) and Messier objects.

Again, once centred using the mouse, information pertaining to them can be dragged from the menu bar.

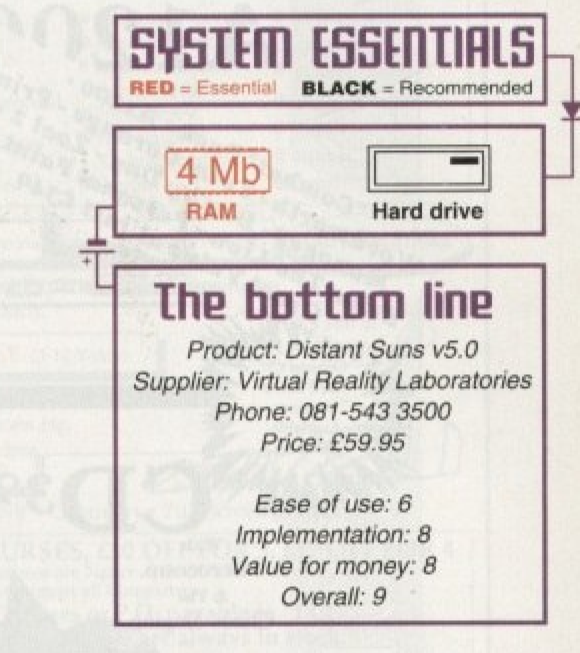
Closer to home, Distant Suns has plenty of features to satisfy observation of the solar system. The user can observe sunspots, lunar eclipses and a whole host of planetary motions in action.

The key to this device is through the use of a clock, which is situated within the menu. This allows you to speed time up, or slow it down, depending on what you are viewing.

As you can imagine, some of the images that can be simulated, like the orbit of Pluto, take hundreds of years to complete their course. Whereas, a solar flare during an eclipse will last only seconds, and needs to be slowed down.

Distant Suns also incorporates comets and asteroid bodies, and allows the user to do everything, and view everything in the same manner as the other aforementioned objects. But, one of the most enterprising features of the program is its ability to create your own real-time animations. The process involves using tools from the menu, and, or, ARexx commands.

For the most part animations can be completed with ease using the programs own devices, for more complicated animations ARexx scripting is required. AC



In conclusion

In terms of features, Virtual Reality Laboratories have included just about every object that lights up the night sky. It's also impressive that every facet within the structure of the program is accurate and faultless to a tee.

The images, if a little scarce (considering it's an AGA version), are concise, and the rendering of the stars particularly impressive. The same can be said of the animation creator and the planetary orbit and motion animator.

Since v4.0, Distant Suns does feel as though it has matured somewhat, and the inclusion of an icon bar, for the more regularly used options, seems like a natural progression.

Distant Suns is involved enough to keep even the keenest of amateurs at the technological sharp-end of astronomy for quite a while. As a tool for the keen observer, Distant Suns can't be faulted, in fact its even been adopted by leading space writer and expert Arthur C Clarke.

But, aside from enthusiasts and schools I see little mileage in Distant Suns for any other user. By the virtue of its subject matter, Distant Suns has to tackle complicated astrophysics, and can in no way be deemed as a package with which to learn.

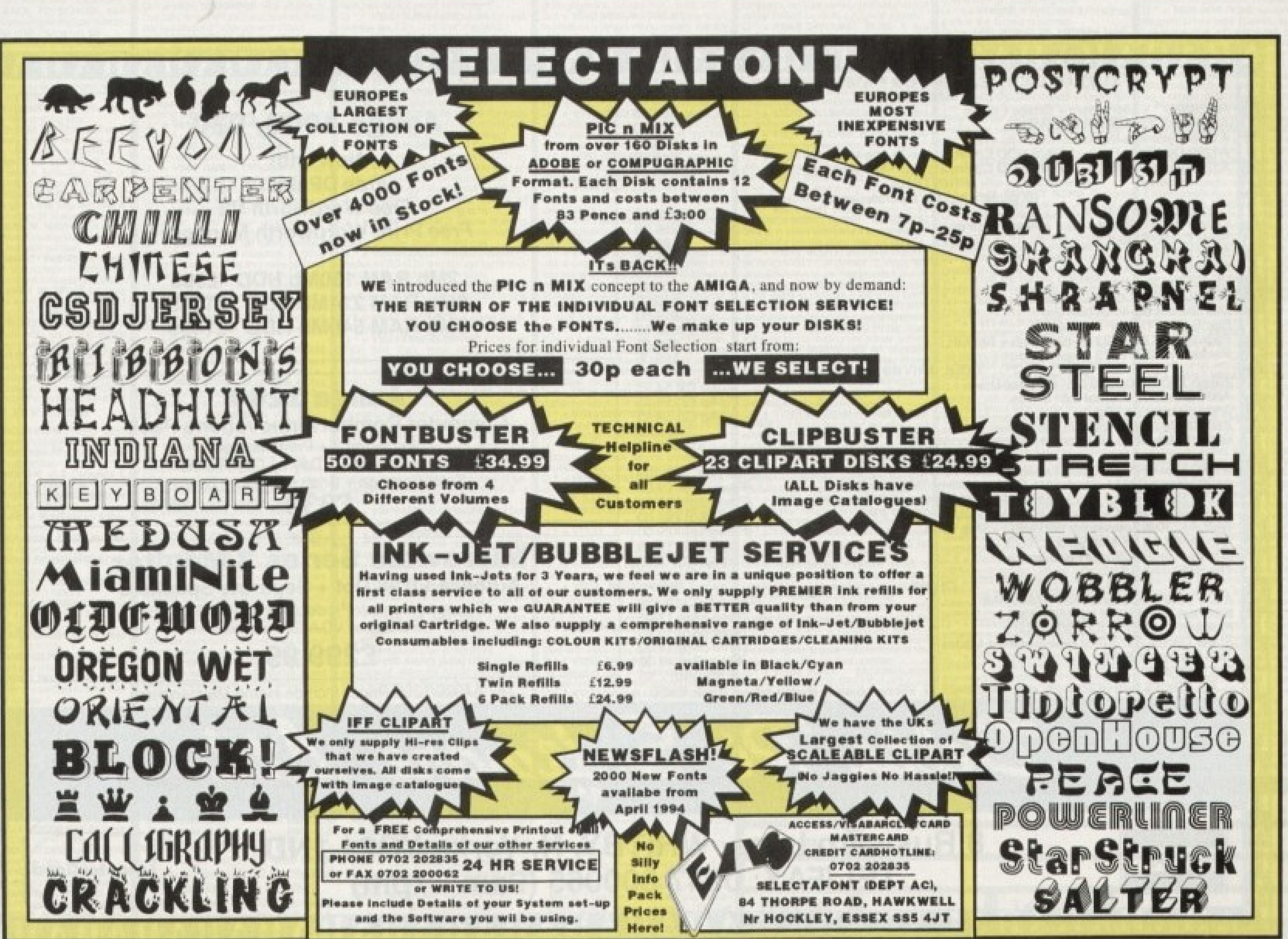
The bottom line is that Distant Suns is a first-rate astronomical aid to the amateur, the lecturer or the determined novice with a fascination but no practical experience, and is probably a waste of money to those who just fancy a slide show.

While v5.0 for the Amiga is still a disk-driven affair, CD32 owners may read with some interest that a CD-ROM version for the Apple Macintosh range of machines has just been released.

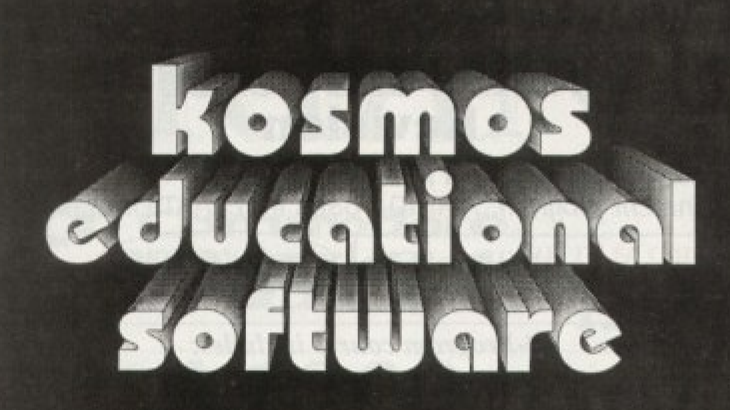
Intrinsically, the program is the same, but the number of images that a CD can store has meant that a much more diverse range of images are available to the user.

As well as different views of major objects within the solar system, the CD version boasts photographs of deep space images, like the Crab Nebulae.

As an added bonus this version of Distant Suns features movie sequences of all the planets in our system. While there's no news from VR Laboratories about a CD32 version, watch this "space" for updates.



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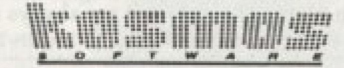
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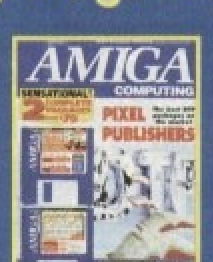
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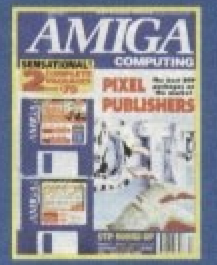
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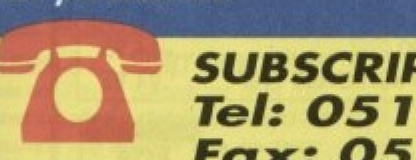
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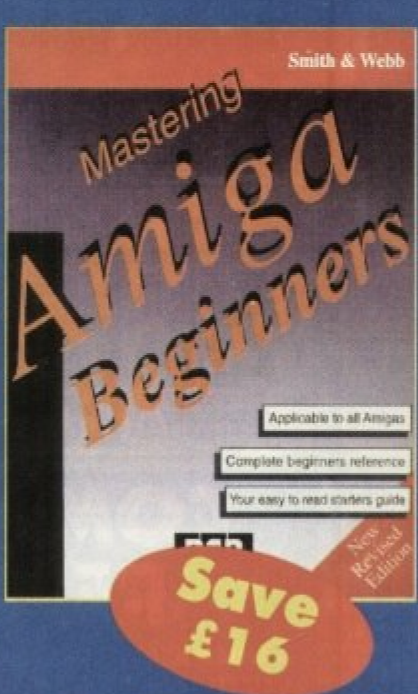


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- D253 SUNTEAM GG ESWAT Eswat games
- D254 AKIRA DEMO Akira Manga demo
- D255 TROOP JUGERNORT 1 Story & games
- D256 MANGA WORLD 2 More Manga slide show
- D257 SUNTEAM QUIZ Quiz
- D258 MAKE IT SO EASY Guess

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- AGA006 NEW SUPERKILLER Know & kill 316 types of virus, well recommended
- AGA007 MINDWARP one of the very first demo for the A1200
- AGA011 SLEEPLESS NIGHT 3
- AGA012 PLANET GROOVE release by Team Hoi
- AGA013 MOTOR INVADER 2 (2 Disks) Very playable INVADER clone set. Recommended
- AGA015 POINT OF SCALE Stunning vector demo came direct from France
- AGA016 CHROMA good demo
- AGA017 WORLD OF MANGA AGA (4 disks) Load of cute Manga chic slide show in stunning 256 colours
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- AGA023 U-CHESS the best chess program so far, stunning graphic but requires 4 megabytes
- AGA024 WORKBENCH 3 SCREEN Great back drop for A1200 (not for beginners)
- AGA41 GIF BEAUTIES VOL 1-10 Available each disk auto boot & contain loads of stunning pics of raunchy women. Note fully compatible with any Amiga
- AGA062 BODY SHOP VOL 1-7 Available (2 disks each) See description above (A1200 only) & order with volume number 1 to 7 (2 disks per volume)
- AGA080 FIT CHICK VOL 1-5 Available (2 disks each) see description above (A1200 only)
- AGA90 ASSASSIN FIX DISK 1 brilliant collection of degrade utilities for running non compatible software, we recommended you get this 2 disk now
- AGA91 ASSASSIN FIX DISK 2 (new) latest contained more degrade utility (see above) Recommended

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LOT OF SAMPLE IN OUR DISK CATALOGUE
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- CCA36 EXPLORERS
- CCA37 FISH (4)
- CCA41-51 FLOWER (11)
- CCA56 HORSE (2)
- CCA57 FRUIT (2)
- CCA55 FRONTIER
- CCA58-62 INSECTS (4)
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- CCA64-72 MAMMALS (9)
- CCA73-74 INSTRUMENT (2)
- CCA75-76 MILITARY (2)
- CCA77-78 PRE HISTORY (2)
- CCA79-83 PEOPLE (4)
- CCA84-85 PRESIDENT (3)
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Latest catalogue disk please add 70p
(Europe add 25p per disk for P&P)
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We open 7 days a week & all orders same day despatch

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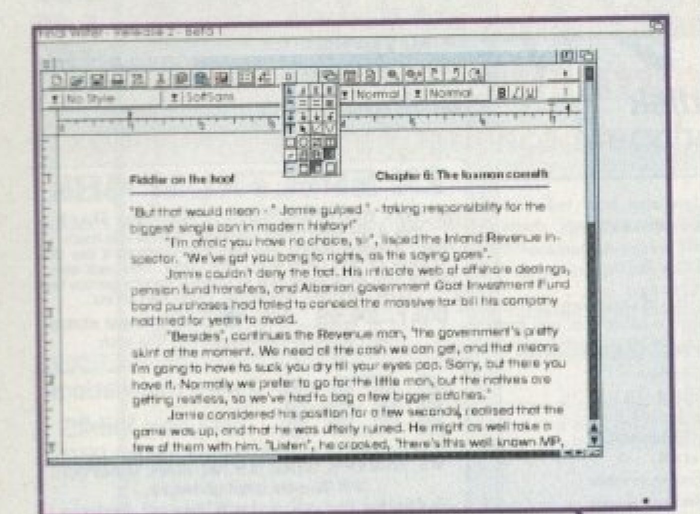
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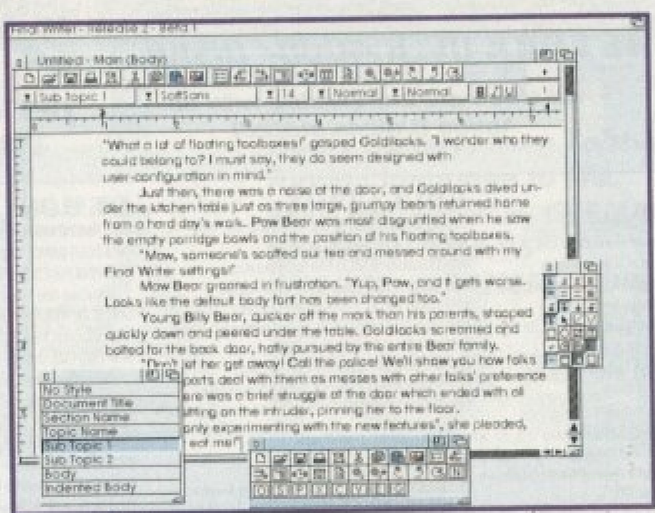
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D007 +NIGHTBREED (A)	D033 +Utopia (A)
D009 +Maria Whittaker (A)	D045 +Girls of Sport (A)
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D028 Kathy Lloyd*	

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F050 +PS Logo Font (1-9)
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F070 +Pagestream Font (1-6)





Left: The new toolboxes allow for putting paragraph formatting commands on the ruler bar
Right: Things can become a little cluttered when all the toolboxes are left floating on-screen

SoftWood's Final Writer word processor was launched last year to the acclaim of most reviewers and was held by many to be the best word processor around.

However, perfection is hard to come by, and the program had a few failings. With the release of Digita's Wordworth 3, SoftWood couldn't have picked a better time to hit back.

If these two competing packages could be pigeonholed, Final Writer has always been the better DTP and layout specialist of the pair, and Wordworth more of a word cruncher for long documents.

Poor graphics performance from the Digita program and flaws in Final Writer's text handling reinforced the distinction, but since the initial launch of both word processors, the line has become a hazy one.

Last month's review of Wordworth 3 showed that, though the first release was badly bugged, Digita had taken a leaf from SoftWood's book and converted to the school of glitzy design.

With new layout features such as flexible text frames and templates, Wordworth threatened to pull the rug out from under SoftWood's feet when the bug-fixed version was dispatched to users.

To be fair, Final Writer v2 is not a new version of the program but a relatively minor upgrade which deals mainly with improving the user interface. The only new feature is a revamped Undo/Redo which now works with both text and graphics.

In time-honoured fashion, the Undo option will reverse any text editing action, but it will now work in a similar fashion with the program's built-in drawing tools. However, no Undo is allowed for actions carried out on imported images, and as Wordworth's facility to retain the original image's proportions when scaling on-screen removes much of the need for a graphic Undo, Final Writer doesn't have an edge in this department.

Where the SoftWood offering has always been in front is in its approach to style tags and user-defined button bars. Unlike Wordworth, Final Writer can utilise up to eight fully-customised banks of buttons, though it would be a rare user who needed more than two.

A new touch for this release is that the button bars can be detached from the ruler bar and placed anywhere on-screen in a floating toolbox. The main advantage of this is that instead of using the usual button to flick from one bank to the next, the user can resize the floating toolbox so that all tools are available from one window.

Some users will never need to make use of floating toolboxes such as this, and there are those who detest the things, but it is always better to offer the option.

By hiding boxes behind documents so that only the depth gadgets can be seen it is possible to keep them out of the way but still instantly accessible, so there's no reason not to make use of them.

With the tool strip out of the way on its own toolbox, the space it occupied in the top ruler can be used to display the new drop-down menus for paragraph style and font control.

TRADITIONAL

In almost exactly the same way as Wordworth 3, fonts, font size, and text style can now be selected from quick and easy drop downs rather than the traditional menus used in Final Writer v1.

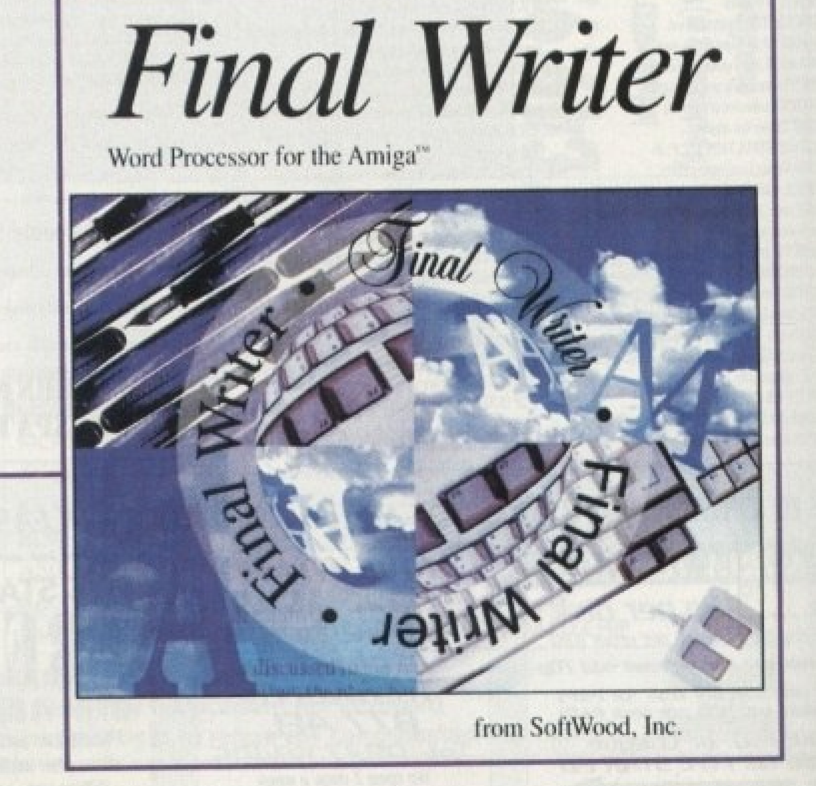
However, the way in which the font size drop-down is presented makes it a pain to use. Rather than present the four or five most common font sizes, the huge menu which appears shows every point size you can imagine, forcing the user to scroll through them.

To test how far this ridiculous feature would go I tried scrolling up the sizes to the largest available, but gave up at about 230. There is



Imported graphics can suffer from the program's lack of a proportional scaling option





revenge

Can Final Writer 2 make up the ground it has lost to Wordworth 3? Stevie Kennedy finds out

no facility to just type the required font size into a string gadget as in Wordworth 3.

On a brighter note, Final Writer's style tags, for which Wordworth still has no equivalent, can now be placed in a floating toolbox of their own for easy use during document formatting.

The style tag approach is by far the best for users who use a package for DTP-like jobs, as any style the user likes for headlines, footers, endnotes, and so on can be assigned to a style tag which can then be applied to any piece of text with the click of a button.

As v2 retains the ability to define function keystrokes for each style tag, Final Writer users now have three different methods to choose from.

Keyboard jockeys with good memories can stick to F-keys, traditionalists can use the old menus, and bright young things can fiddle with toolboxes.

Another new toolbox is provided for the tools which normally sit on the ruler bar, but which most users will want to replace with the new paragraph formatting controls. Once ousted from their old position, they can be placed in a resizable tool box or just left in the wilderness as the user sees fit.

Containing the rotation, master page, cut, paste, and other useful tools as they do, these are too-often-used features to relegate to the old menus, and it is a nice touch that the designers allowed for a toolbox option so that we can have our cake and eat it. Configurability, already a great strength of the package, has been further enhanced, and the program's modern feel is now even stronger. In addition, Final Writer's huge advantage in graphics handling speed has not been reduced so far by Digita's efforts.

However, given that no new power features have been added and that Wordworth 3 (once the bugs are fixed) now has many layout advantages over its rival, it looks as though SoftWood's thunder has been well and truly stolen.

Final Writer, with its fast graphics, style tags and master pages is still better equipped for DTP on AGA machines than Wordworth 3, but the latter's new features ensure that the decision to buy one or the other will be based more on simple user preference than on any definite lead one package has over the other.

A missed opportunity

Final Writer 1 had few damaging faults, but those which it had have not been changed or improved with this release, and it has to go down as a missed opportunity.

Of most note is the fact that there is still no Show Codes option to enable the user to view carriage returns, spaces and tabs. In day-to-day use this is a feature which would be rarely used, but when it is required, such as when text is imported from another package or from another machine, it is an essential basic feature for any word processor.

Reformatting an alien document and having to guess where the double spaces, tabs, and carriage returns are can be a nightmare to make Michael Portillo as prime minister seem almost dream-like. Another annoying feature is the auto-save, which simply reminds the user when a certain amount of time has passed rather than automatically save the document as it should. Wordworth 3's equivalent can be set for either true auto-save or just a reminder, making it much more useful.

Graphics scaling on-screen, though much faster than any other package, has always suffered from the lack of a proportion option, and it still does.

Few imported images come in at just the right size, and usually have to be scaled to fit the document. When this happens, though, the Final Writer user is forced to mess around until the image is back in its original shape.

As the disk we received from distributors Gordon Harwood is a Beta test version, it is possible that these tweaks will still be carried out, but there's nothing to suggest that they will. Fingers crossed, folks.

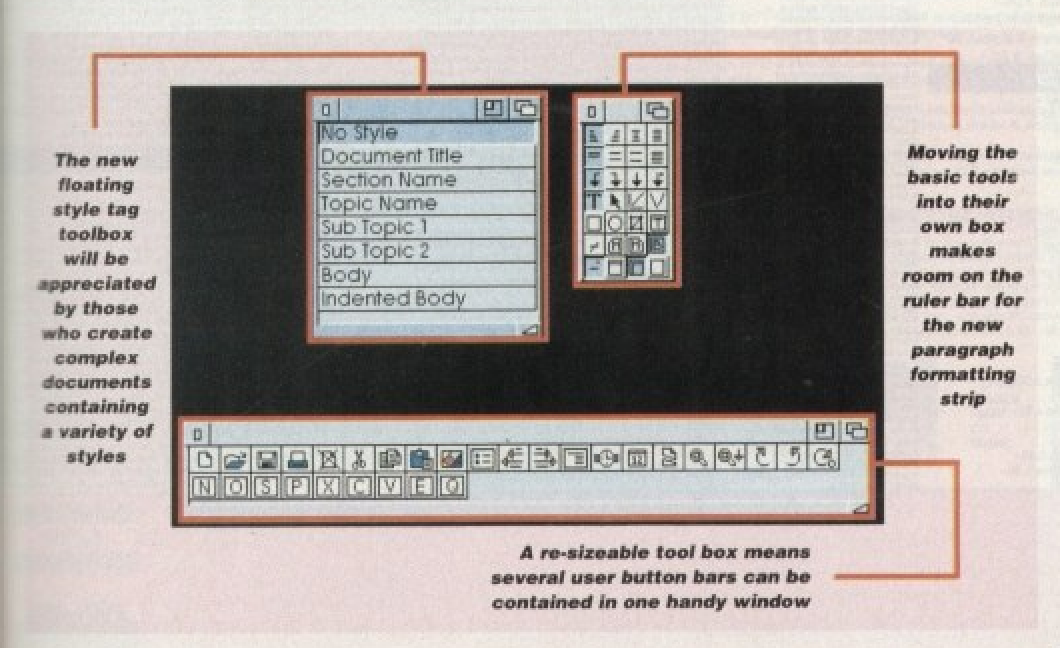
Jargon buster



drop down menus: Presented on-screen as 3D buttons, making them easier and quicker to access with the left mouse button than the old menus we've always used with the right mouse button.

floating toolboxes: A way of presenting the program's various features as icons within windows which can be placed anywhere on-screen, making them quicker to use and more friendly towards the user's configuration preferences.

proportion fixing: A method whereby when an image is re-sized it retains its original height to width ratio so that the picture within doesn't become distorted.



The new floating style tag toolbox will be appreciated by those who create complex documents containing a variety of styles

Moving the basic tools into their own box makes room on the ruler bar for the new paragraph formatting strip

A re-sizeable tool box means several user button bars can be contained in one handy window

SYSTEM ESSENTIALS

RED = Essential **BLACK** = Recommended



The bottom line

Supplier: Gordon Harwood Ltd
Phone: 0773 836781
Price: £114.95

Ease of use 9
Implementation 8
Value for money 9
Overall 9

Domain Distributors

not the imitators!

P S D

CLASSIC CLIPART

(Black & White) (Okay on A1200 / A4000.)
The clipart in this collection is very high quality, huge bitmaps, many greater than an Amiga hires screen, for use in Dpaint or DTP packages, each disk autoboots into a slideshow allowing you to view the entire bitmap by moving the mouse! (Prices per disk!)

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- HOUSES 2 disks, pictures of mansions etc!+
- RELIGIOUS 3 disks full of holy clipart!+
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- HALLOWEEN CLIPART Wierd clipart!+
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- VEGGIES Vegetarian clipart!+
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- ACCENTS & FLASHES Burst stars+ more+
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- SOFTSCENE 3 More nice scenery pictures! +Y
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- ANIM & BIRD 44 nice pictures! +Y
- MOSSBURN ANIMALS 32 nice animal pictures! +Y
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- TRANSPORT 3 disks of Cars,Airplanes Ships etc!(3)+Y
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- ASTROLOGY 2 disks of astrological signs! +Y
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- THE MYSTERIES OF RUNES all the signs. +Y

COLOURED CLIPART

This is a superb collection of coloured clipart, mostly in Ham mode (4096 colours), though some is in 16 colours. Can be loaded into Deluxe Paint 4 or any other package accepting Ham pictures! (OK on 500, 500+, 600, 1200 & 4000!)

- CCL001 MAPS, Afganistan - Botswana, autoboots! +Y
- CCL002 MAPS, Brazil - Checkoslovakia, autoboots! +Y
- CCL003 MAPS, Denmark - Grenada , hires maps! +Y
- CCL004 MAPS, Guadel - Illinois, hires maps! +Y
- CCL005 MAPS, India - Luxembourg, hire maps! +Y
- CCL006 MAPS, Macau - Missisipi, autoboots! +Y
- CCL007 MAPS, Montana - New York, hires maps! +Y
- CCL008 MAPS, Neutral Zone - Iraq - S Dakota! +Y
- CCL009 MAPS, Senegal - Tuvaw, autoboots! +Y
- CCL010 MAPS, Texas - Zimbabwe, autoboots! +Y
- CCL011 REPTILES, good pictures, autoboots! +Y
- CCL012/3 ACTORS, famous faces, autoboots! +Y(2)
- CCL015/6 AIRCRAFT & CARS assorted, autoboots! +Y
- CCL018/26 BIRDS 8 disks, Super, autoboots! +Y
- CCL027 CATS, 1-16 Super cat pics,autoboots! +Y
- CCL028/35 DOGS, 1-126 Super dog pics,8 disks! +Y
- CCL036 EXPLORERS 1-13 famous explorers,autoboots+y
- CCL037/40 FISH 1-92 Super pics pictures,(4 disks)+y
- CCL041/51 FLOWERS 11 disks of flowers! (11 disks)
- CCL052+4 FRUIT 2 disks, Good pics! (2)autoboots! +Y
- CCL055 FRONTIER 1-13 Pioneer pictures,autoboots
- CCL056/7 HORSES 1-16 Great horse pics,autoboots!(2) +Y
- CCL058/61 INSECTS Small creatures!(4 disks) +Y
- CCL062/3 INVENTORS 2 disks full (2) +Y
- CCL064/71 MAMMALS More animals pictures!(8 disks)+Y
- CCL072/3 INSTRUMENTS 4-25 Musical (2 disks) +Y
- CCL074 MILITARY 7-17 & MUSICIANS 1-4! +Y
- CCL075 MUSICIANS 9 -21 Classical! autoboots! +Y
- CCL076/7 PREHISTORIC Dinosaurs!(2) autoboots! +Y
- CCL078/81 PEOPLE Lots of people! (4 disks)+YY
- CCL082/4 PRESIDENTS 1-40 USA presidents,3 disks +Y
- CCL085/7 REPTILES 1-19 Good pics (3) autoboots! +Y
- CCL088 SHIPS 10-33 Marine vessels! +Y
- CCL089 SPORTSMEN, Various sportsmen,autoboots! +Y
- CCL091/6 TREES, 6 disks of tree pictures! autoboots! +Y
- CCL097/100 VEGETABLES 1-48 goodpics4disks,wb+y

COLOUR BRUSH CLIPART

Saved as brushes so they can be pulled easily into Dpaint!

- CB001 Lots of brushes on an art & schoolwork theme. +Y
- CB002 Lots of brushes of stores food,garden home & more! +Y
- CB003 Lots of brushes on a sporting theme (142 brushes) +Y
- CB004 Lots of brushes on a food & confectionary theme! +Y
- CB005 Lots of brushes. 155 pics on a financial theme. +Y
- CB006 Lots of brushes of cute cartoon caracters! +Y

FONTS (Bitmapped & assignable)

- PU048 DYNAMITE FONTS II CutNPaste fontscreens Y
- PU049 DYNAMITE FONTS More CutNPaste Fonts Y
- PU058 FONTS AND RAM MANAGER BIG video fonts+
- PU059 FONTS & SURFACES Backdrops & fonts+ Y
- PU169 GELIGNITE FONTS CutNPaste fonts!+
- PU175 GELIGNITE FONTS II Excellent IFF fonts+Y
- PU176 GELIGNITE FONTS III More of above!!+
- PU185/8 COSMOPOLITAN FONTS (4) Packed with fonts+Y
- PU201 MALICE FONTS Exellent tiny fonts for Dpaint!+Y
- PU226/7 C-EYES FONTS For use in Dpaint, WB, etc.(2)+Y
- PU278 GELIGNITE FONTS IV Yes more IFF fonts!
- PU331/43 COLOUR FONTS(ASSIGNABLE)Dpaint etc(13) +Y
- PU356 FONTFARM Contains 55 large & Small fonts! +Y
- PU390 FONT FARM 2 Lots more good fonts! +Y
- PU391 FONT FARM 3 Another disk crammed with fonts+Y
- PU451/2 HARLEQUIN FONTS Hires fonts & textures!(2)+Y

CLASSICAL MUSIC

- PM012 AMIGADEUS CLASSICAL Eine Kleiner etc. +Y
- PM022/23 CLASSICAL MUSIC Bach, Handel etc +Y
- PM035 DIGITAL DEBUSSY Fab R Baxter conversions!+Y
- PM036 DIGITAL DEBUSSYII classic Debussy music!+ Y
- PM070 RHAPSODY IN BLUE tracked by Rob Baxter! 1MY
- PM082a/82b VIVALDI - FOUR SEASONS (2) V Good !+ Y
- PM090/91 MOZART HORNCONCERTOS need 1mg chip+ Y
- PM130/2 BACH BRANDENBURG CONCERTOS 1 to 6 +Y 3
- PM150 DESKTOP HARPSICHORD RECITAL Classical! + Y
- PM165/6 NUTCRACKER SUITE Super rendition!+
- PM174 CLASSIC WORKS Grieg & Bach classics! +Y
- PM175 SONIX MUSIC Some nice scores here!(loadwb)+Y
- PM183 CLASSIX GOLD Bach Toccata& Fugue (1mg chip)
- PM184 MOZART FLUTE CONCERTOS 1mg chip! +Y
- PM218 HANDELS FIREWORKS MUSIC (1mg chip) +Y

AMOS PD

- APD036 AMOS UPATER LATEST VERSION v1.36 + Y
- APD182/3 PIXIE KINGDOM Good exploration game (2) +
- APD237 SHAPES Excellent kids game !+Y
- APD257 CASSETTE LABELLER + MIXED SOURCE+Y
- APD271 WIZARDS DOMAIN graphical adventure+Y
- APD341 TOTALLY AMOS Good read for programmers!+Y
- APD347 NOTEBOOK & SHOPPING LIST Easy to use !+ Y
- APD363 FAMILY HISTORY DATABASE Latest version!+Y
- APD373 COMPILER 1.36 UPDATE, LATEST compiler !+Y
- APD431 KARATE WORM II Nice little game! +Y
- APD435 DRIVER TEST Test speed of your reactions!+Y
- APD442 SLIDESHOW CONSTRUCTION SET V2! +Y
- APD451 NODDY.S PLAYTIME Educational demo! +Y
- APD452 RAMOS PRO For Amos Professional! +Y
- APD458 TOP OF THE LEAGUE Football manager!+Y
- APD466 AMOS PRO UPDATER V1.12 Just in!!! +Y

NEW! UPD GOLD LICENCEWARE! MAD FIGHTER 1200!



Superb new 3 disk fighting game for the 1200 only! This will keep you busy for ages as you try to defeat one opponent after another. Huge sprites and fast gameplay make this an essential 1200 game!
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Plain,Black Forest,Newbold,Oswaldback,Posterscript,Rhyolitvertical,Rudelsburg,Sharktooth,Varlacaps &

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- PG026 CASTLE OF DOOM Excellent! Get it + Y
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- PG032 DRAGONS CAVE D&D style game Mega+ Y
- PG034 ETERNAL ROME Strategy & DOMINOES+ Y
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- PG047 HOLLYWOOD TRIVIA Nice Trivia Game! +
- PG048 HOLY GRAIL One of the best Text adventures+ Y
- PG053 LARN A superb text adventure game +Y
- PG059 LORE OF CONQUEST space trading D&D game Y
- PG062 MENTAL IMAGE 1 Gridrunner invaders & rebound+
- PG063 MORIA Classic adventure now version 5.4! +Y
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- PG068 NO MANS LAND Hi tech war game-shoot em up. +Y
- PG070 PETER'S QUEST Rescue the maiden platform!+
- PG071 POM POM GUNNER Like beach-head on the 64+Y
- PG072 PROPERTY MARKET Become a millionaire !!!
- PG074 RETURN TO EARTH Elite space trading game! +Y
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- PG079 SEALANCE A submarine strategy game +Y
- PG101 THE INSIDERS CLUB Stocks & shares game
- PG121 A500+ GAMES PACK 21 games to run on a plus+Y
- PG124 TOTAL WAR This is a good risk type game! +
- PG127 AIRMANIA Super game from Addware + Y
- PG131 ATLANTIS A nice looking strategy game!+
- PG138 BATTLE OF BRITAIN & WAR strategy War games!
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- PG140 MIND GAMES Stacks of fun with this!
- PG149 A NIGHT AT THE TOWN Witty text adventure!+
- PG153 WAR very good strategy/arcade game+Y
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- PG174 AMOS CRICKET Shareware cricket game,1 or 2plr+
- PG175 SPACETRAX 2 player shoot each other up game+Y
- PG179 MENTAL IMAGE 2 Three Excellent new games +
- PG180 SECTOR 1 A nice game similar to Alien Breed+
- PG182 ETHOS Simple graphical adventure Sinbad style+Y
- PG183 CATACOMBS great D&D style game. VG GFX +Y
- PG184 FATAL MISSION Very good Shootemup game +
- PG190 TOP SECRET An exelent quality platform game!+
- PG191 ACT OF WAR New space strategy game! +Y
- PG199 CASHFRUIT Nice fruit machine game! +Y
- PG200 ALL ROUNDER CRICKET New cricket game!+Y
- PG202/3 IRON CLADS Good strategic war game!(2)Y
- PG205 SOCCER CARDS Football managing game!+Y
- PG218/9 CLASH OF THE EMPIRES Super strategy!+ Y
- PG255 KINGDOM AT WAR Nice strategy war game!+Y
- PG258 AGA TETRIS 1200 tetris game & more! Y
- PG259 PICTURE PUZZLE Solve picture jigsaws!+Y
- PG260/1 18TH HOLE A nice golf game! (2) +Y
- PG262 AGA CHESS Needs 4mg of ram to play! AGA ONLY.
- PG267 SLAMBALL V1.1 Futuristic Management sim! +Y
- PG273 MUGSIE Money making gangster adventure!+Y
- PG274 ROULETTE & PUNTO 2 nice games (not 1.3)+Y
- PG279/80 OLYMPIAD 2 disk Lemming olympic events(2)+Y
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- PG283/4 EXORCISM Good 2 disk adventure+graphics+Y
- PG286 MYSTERY 2144AD Nice text adventure! +Y
- PG289/90 NECESSARY ROUGHNESS American football+Y
- PG291 TITANIC CHEATS Hundreds of useful cheats! +Y
- PG295 THRUST DUEL Control ship against gravity+Y
- PG298 FATAL MISSION 2 Superb blasting shoot up!+Y
- PG301/2 MOTOROLA 020 INVADERS For 1200 ONLY!(2).
- PG303 MAD FIGHTER Fab PD version (1200 ONLY.
- PG305/7 KLONDIKE II AGA Exellent,3 disks 1200 ONLY.
- PG308 HIGH OCTANE Super overhead driving game+Y
- PG309 JELLYQUEST Nice jumping puzzle game! +Y
- PG310 FUZZWORD Sliding block puzzle game. +Y
- PG313 ROAD TO HELL Super driving race game!+Y
- PG316 METAL MOTION Operation wolf type shoot up+Y
- PG319 PROFESSIONAL BINGO Great , with speech+Y
- PG320 SLIME Yes its slimy! destroy the slime.+Y
- PG321 ESCAPE MT DOOM Dungeon type adventure+Y
- PG322 QUACKERS A Cute character platform game!+Y
- PG325 MEGABALL 3 AGA The BEST version!(1200 Only)
- PG326 DART'S GAME A nice darts game. +Y
- PG327 NOSTROMO CHEATS Tons of cheats on this disk+Y
- PG328 GAME TAMER V4.59 Crammed with cheats+Y
- PG329/30 STARBASE 13 Graphic space adventure(2) +Y
- PG331 GRAND PRIX MANAGER Racing strategy game.+Y

EDUCATION

- PE001/5 EDUCATION SET science programs for age 11+ +Y
- PE006 KIDSPAINT Fab little talking colouring book+Y
- PE007/8 LEARN & PLAY Maths, spelling etc. 5-10 yrs +Y
- PE009 STORYLAND 2 Save toyland from the witch! +Y
- PE010 TOTAL CONCEPTS ASTROMOMY Book on disk.+Y
- PE011 TOTAL CONCEPTS DINOSAURS Book on a disk+Y
- PE013 SIMON & SPACE MATHS Talking maths program
- PE014 SPANISH, FRENCH, GERMAN TUTOR+ Not 600!
- PE016 COLOUR THE ALPHABET learn letters & colours! +Y
- PE019 DUNKS DTP A sort of DeskTopPublisher for kids +Y
- PE021/4 SCIENCE Very good four disk set+ (4)Y
- PE025 FRACTIONS & SILHOUETTES Good maths tutor+ Y
- PE026 WW II FACTS Good historical program!+ Y
- PE027 AMIGA BEGINNER Learn to use your machine+ Y
- PE028 MATHS ADVENTURE Solve questions to progress+Y
- PE030/2 DESKTOP GUIDE TO ELECTRONIC MUSIC! +Y
- PE033 MATCH WITH HUMPTY Match the objects! + Y
- PE034 WORLD GEOGRAPHY Quite useful disk! +Y
- PE035 KIDS DISK1 Super to learn reading! +Y
- PE040 HOW THE EARTH BEGAN The full story! +Y
- PE041 SINGALONG NURSERY RHYMES Good fun! +Y
- PE042 CHILDRENS FAVOURITES More nursery fun! +Y
- PE043 PICTURES & LETTERS For very young,1mg chip+Y
- PE046 TOTAL CONCEPTS DINOS 3 PREVIEW Super +Y
- PE047 ASI BACK TO SKOOL1 Style Count & Words +Y
- PE048 ASI BACK TO SKOOL2 Simon Cal maths train etc+Y
- PE049 BACK TO SKOOL3 Treasure search,Reflex etc+Y
- PE050 THE LITTLE TRAVELLER Learn about countries+Y
- PE052 COMMUNICATE Superb sign language teacher! +Y
- PE053 HIWAY CODE QUESTIONS & ANSWERS Useful +Y
- PE054 ARTISTIX Superb shareware art package+Y
- PE055 JUNIOR MATHS Suitable for young children+Y
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- PE059 JAPANESE TUTOR Learn yourself Japanese+Y
- PE060 IRREGULAR VERBS A good quiz disk +Y
- PE061 CHESS TUTOR A simple chess tutor.+Y

BUSINESS

- PB001 AMICASH bank management program+Y
- PB002/3 ANALYTICALC Superb spreadsheet!+ (2)Y
- PB004 ASI LABEL PRINTERS 3 of the best+Y
- PB005 BANKIN control your cheque book! +Y
- PB006 BUSINESS CARD MAKER Nice program+
- PB007 CLERK Complete accounts package+Y
- PB008 DESKTOP PUBLISHER Simple to use +Y
- PB009 FLEXYBASE DATABASE Address keeper+Y
- PB011 MISC BUSINESS Geotime, Grocery list, Calc
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- PB024 LAST WILL & TESTAMENTS Just in case !+
- PB026 AGRAPH Superb Program graphing data +Y
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- PB033 A BASE A shareware database program! +Y
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- PB035 BUDGET V1.34 manage personal finances!+
- PB036 CHECKBOOK ACCOUNTANT V2.01 superb! +Y
- PB037 AMIBASE PRO II Latest version of database! +Y
- PB038 BUDDBASE V1.2 Very nice easy to use database+Y
- PB039 BANK V1.0 A nice banking program! +Y
- PB040 PAY ADVICE ANALYSER V4 Latest version! +Y
- PB041 AMIGAWORD A useful geographical database!+Y
- PB042 EASYCALC PLUS+ Improved, only dos 2 or over!+Y
- PB043 ACCOUNT MASTER Home finance program. +Y
- PB044 EDWORD PRO V4 Superb new version! +Y
- PB045 FH SPREAD A nice spreadsheet program! +Y

DEMOS

- PD005 AMOS 3D DEMO Shows some great effects!+Y
- PD018 CHAOS ROCK Fab light show with fractals!+
- PD058 PHENOMENA ENIGMA Absolutely brilliant! +Y
- PD093 SCOOPEX CHROMIUM Superb demo.+Y
- PD094 SCOOPEX MENTAL HANGOVER A classic+
- PD097 SILENTS GLOBAL TRASH Incredible!!+
- PD130/34 ALCATRAZ ODDESSY Awesome!! Ok on 500+!
- PD154 DECAY GET FROGGED Superb quality! +Y
- PD165 DARK DEMON Mega new demo ...get it! +Y
- PD170 PIECE OF MIND Good 3D vector effects. +Y
- PD171/2 SILENTS EXPOSE(2) Incredible Get it !+Y
- PD177/8 TRSI TIME ZONE New, some good effects!+Y
- PD182 SPACEBALL Absolutely brill,needs 1meg chip!+Y
- PD185/6 ANDROMEDA MIRROR Fab Music & Graphics!+Y
- PD187 HOY AGA DEMO 1st 1200 demo,a must! 1200 ONLY
- PD188 SANITY WORLD OF COMMODORE Super demo+Y
- PD189/90 SILENTS DEMON DOWNLOAD Fab demo! (2) +Y
- PD200 PHOENIX DEMO inc Flashy rave demo!+Y
- PD201 1200 INTROS Yes, some AGA intros at last! Y
- PD202 TECHNOLOGICAL DEATH Freaky techno rave +Y
- PD205 FAIRLIGHT ILLUSION Good demo 1mg chip! +Y
- PD206 MELON HOW TO SKIN A CAT Nice effects! +Y
- PD208 HOI AGA DEMO 2 2nd fab demo for 1200 only! Y
- PD209 STONE ARTS ATMOSPHERE Nice demo. +Y
- PD213 TROJAN TECKNO TRACKS Amazing effects!!+Y
- PD214 TALENT PANTA RHEA realtime 3d fractals1200 only
- PD215 FAIRLIGHT 242 Unusual & interesting demo! +Y
- PD216/7 A TRIP TO DEEP BASS A must have rave demo!+Y
- PD218 VIVID ABSTRAX PIG AGA Mega colourful1200 ONLY.
- PD219 IMPULSE ART & GO Good music & pictures! +Y
- PD220 LEMON RINK A DINK Very classy demo!+Not 1200.
- PD221 POINT OF SALE Best AGA yet!! 1200 ONLY
- PD222 PYGMY EXTENTION DEMO Fast moving demo.+Y
- PD223/4 SPACEBALLS 9 FINGERS This is MEGA!!(2) +Y

CLASSICAL LITERATURE

Super books on a disk,perfect for English Literature revision!(ok 500+,600, 1200)

- LIT1 Midsummer nights dream, Macbeth, Julius Caesar Anthony & Cleopatra.
- LIT 2 As you like it, Lovers complaint, Cymbeline, Hamlet.
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- LIT 4 Twelfth night, Venus & Adonis, Troilus & Cressida, Love labours lost.
- LIT 5 Two Gentlemen of Verona,A Winters tale,Rape of Lucrece,Pericles.
- LIT 6 Othello,Much ado about nothing, Measure for measure.
- LIT 7 Henry the Sixth (Parts 1, 2, & 3).
- LIT 8 Henry the Fourth (Parts 1 & 2), Henry the Fifth.
- LIT 9 Richard the Second, Richard the Third.
- LIT10 Henry the Eighth, King John, King Lear.
- LIT11 The Taming of the Shrew The Tempest,Timon of Athens,Titus Andronicus
- LIT12 Alls well,Comedy of errors,Merchant of Venice,Merry wives of Windsor
- LIT13/14 WORKS OF MILTON Paradise Lost,Poems, Sonnets etc (2)
- LIT15/16 WORKS OF HOMER The Iliad & the Odyssey. (2 disks)
- LIT17/18 MARK TWAIN Tom Sawyer & The Prince & the Pauper (2)
- LIT19 LEWIS CARROLL Alice in Wonderland & Alice Through looking glass
- LIT20 H.G WELLS The Time Machine & The War of the Worlds
- LIT21 DANIEL DEFOE Robinson Crusoe.
- LIT22 CHARLES DICKENS A Tale of two Cities.

AMIGA MUSIC DISKS!

- PM001 100 GREATEST 64 TUNES 100 fab 64 tunes!+
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- PM059 MANIACS OF NOISE This is brilliant!+
- PM074 SOUND OF SILENTS Just get this its mega!
- PM092 PIANO TUNES Nine piano songs- good + Y
- PM096 STAIRWAY TO HEAVEN Rendition of the song+Y
- PM104 500 THINGS COMEBACK 4 great rave type tracks+
- PM112 TECHOMANIA II 8 essential hardcore tunes+
- PM122/4 PLAYSID 2 (3) You must get this !!!! +Y
- PM125 PLAYSID inc.RobHubbard, ManiacsOfNoise + Y
- PM155 VINE G-RAVE 5 more good rave tracks!!! +Y
- PM167/8 JESUS ON ES Crazy rave music demo! +(2)
- PM179 PLAYSID V2.2 More old 64 style music!(not1.3) +Y
- PM190/1 DANCE TRASH 2 disk set of rave music!(2) +Y
- PM192 HOBBITS & SPACESHIPS music by Dr Awsome+Y
- PM196 MUSIC OF ROMEO KNIGHT Suber music mods+Y
- PM198/9 MIRAGE SUBLIMINAL XTC Fab rave(1200only)
- PM200 DATA-X TRILOGY 3 raved up pieces! +Y
- PM201 DATA-X THE VICTIM 6 more music tracks! +Y
- PM202 XENO INFINITY Good techno funk track!(not1.3)
- PM203 BIO MECHANOID SYMPHONY NO 1 (1200only)
- PM204 PE MUSIC MADNESS 50 chip music tunes! +Y
- PM205 DESERT TECHNO TRAX 4 techno-ish tunes! +Y
- PM211 MBC BASS IN YA FACE Hardcore techno music+Y
- PM212 FOR DA UNDERGROUND More hardcore music! +Y
- PM216 DUAL CREW CHROMATIC good music pack+Y
- PM217 LEGALIZE IT 1 Great Amiga music disk! +Y

ANIMATIONS

- PA039 ERIC-S AMY VS WALKER Cute & sexy! 1.5M Y
- PA040 ERIC-S BATMAN vs JOKER Very funny!!!+Y
- PA042 ERIC-S COYOTE STRIKES BACK 1mg too! +
- PA043 ERIC-S MORE AEROTOONS Very witty !!!+ Y
- PA045 ERIC-S STEALTHY II Mig-29 vs Stealthy !+Y
- PA053/4 LIGHT CYCLES (2) Tron animation+
- PA065/68 REAL 3D (4) Superb of the program+
- PA072 THE JUGGLER A classic amiga demo!+ Y
- PA074 THE WALKER vs The Helicopter - Mega !+ Y
- PA075 THE WALKER vs A2000 A classic ! + Y
- PA086 FRACTAL ANIMATION full screen low fly anim+Y
- PA091/3 GAS TURBINE, STEAM & PETROL ENGINE (3)+Y
- PA094 AMY JOGS,WALKS & SNEEZES by E Schwartz! +Y
- PA095 HOW TO RUN INTO A WALL by Eric Schwartz! +Y
- PA099 ATF AGILITY new ES anim, very witty as usual+Y
- PA100 VTOL CONTEST Check out this new ES anim ! +Y
- PA101 DOLPHIN DREAMS Great Dolphin anim! + Y
- PA103/4 KINGFISHER 2 Superb bird animations!+ Y
- PA106/7 THE JOURNEY Fab fractal pics & anims(2)+Y
- PA118 3.SCHWARTZ Skydive,Soft landing & bomber! +Y
- PA119 STEAM ANIMATION V2.0 Now with sound! +Y
- PA120 TWO STROKE PETROL ENGINE Super anim+Y
- PA122/3 THUNDERBIRDS ANIM Nice animation! (2)+Y
- PA141 STIRLING II ENGINE Another fab engine anim!+Y
- PA143 XMAS ANIMATION Amusing animation! +Y
- PA149 SPAR TREK 6 Clever CD32 advert animation+Y
- PA150 RAGING HORMONE Another funny anim.+Y
- PA151 XWING ANIM Nice star wars animation.+Y
- PA152 NATIONAL WEATHER Amusing little anim!+Y
- PA154 DAFFY LOSES HIS HEAD Amusing animation! +Y

POWER ANIMATIONS

- PP001/2 ANTI LEMMINGS (2) This is Brilliant! 2M
- PP003 AT THE MOVIES anim of Amy squirrel 1.5M+Y
- PP004/7 AUTOMATED LIGHT (4) Battlestar galactica! 3M
- PP008/10 BUZZED (3) Great anim of wasp crashing! 2M
- PP011/12 DATING GAME (2) Very witty!, Get it. 3.5M!
- PP016 GULF WAR Another ES production! Good 2M! Y
- PP021/4 LANDING (4)Tobias Richter poweranim 4M!
- PP025/27 STATION AT KHARN (3) Incredible 2M demo Y
- PP036/7 WALKER DEMO (2) A 2mg version of a classic!
- PP040/43 AT THE MOVIES II (4) Hilarious ! 1mg+3mg
- PP044/45 AMY V WALKER II (2) witty ES demo 3M
- PP046 SWEET REVENGE Coyote vsRoadrunner! 1.5mg+Y
- PP050 UNSPORTING Wicked Schwartz cartoon+ 2M Y
- PP051/2 CHARLY CAT Super Shwartzlike cartoon! 2mg.Y
- PP053/4 CHARLY CAT AT THE BEACH 2nd anim 2mg/Y
- PP057/9 CHARLY CAT CATCHES A CANARY Fab! 3MG.
- PP060/3 CHARLY CAT MOUSTERMIND Great! 3.5MG.
- PP064 DUNCAN DUNG BEETLE Unusual anim. 2mg
- PP065/6 CHARLY CAT SNOWJOKE Latest anim 2mg.+ Y
- PP067/9 SPEED LIMIT 3mg motorcycle race! + Y (3)
- PP070/1 LEMMINGS REVENGE amusing anim! 2mg Y
- PP074/6 G.I. SPY 3mg anim from charlie cat author! (3)
- PP077/84 THE HAUNTED Tremendous animation.3mg!(8)
- PP090/1 ROADHOG ANIM Very funny 2mg animation!(2)Y
- PP099/100 AT THE FLIX Charlie cat again! (2) 2mg
- PP101/4 QUALITY TIME Superb Shwartz 5mg anim (4)!
- PP108/10 CHARLY CAT IN SICKNESS & HEALTH(3)3mg!
- PP111/2 BUGSBUNNY&SPACEMEN Action 2(2mgY
- PP117/8 PRANK ON FURBALL Cat has a pizza! 2mg (2)
- PP119 BAITMASKING Another fun Shwartz anim 2mg(2)Y
- PP120/3 LAST STAND ON HOTH Fab space anim!(4)3mg
- PP127/30 CHARLY CAT DANDRUFF DUO Amusing (4)3mg
- PP131/2 ON THE GREEN Funny golf animation.3mg
- PP133/5 CHARLY CAT AT XMAS Good, needs 3 mg!
- PP136 ATTACK ANIM Great Gulf type animation!1.5mg Y
- PP137/40 HEADING FOR HOME Raytraced space (4)3mg
- PP141/4 MEAN MACHINE Console battle! MEGA (4)3.5mg

MUSIC UTILITIES

- PT002 ART OF MED Excellent music !+ Y
- PT006 DELUXE MUSIC DATADISK For DMCS. +Y
- PT009 K1 IFF SAMPLES Fabulous samples +
- PT011 KAWAI K1 editor for patch changes!
- PT012 KAWAI K4 editor as above!
- PT013 MED 3.2 Excellent music seq. + Y
- PT015 MIDI DISK Various midi stuff +
- PT020 ST-01 - ST-10 Samples--Ring for details
- PT025/6/7/8 ST-90-93 SAMPLES Studio quality+ Y
- PT029 YAMAHA DX7 VOICE FILER for DX7 synths!
- PT030 YAMAHA DX7 VOICE SORTER for the above !
- PT031/2/3 ST-87 - 89 3 disks full !+Y
- PT034/5 ST-97 & 98 More samples !+Y
- PT038 YAMAHA DX100,TX81Z, DX27,DX11 & FB01 editors
- PT040 OCTAMED V2 8 channel MED sequencer!+
- PT041 NOISEPLAYER 4.0 Multitasking module player+
- PT042 START IFF SAMPLES Superb ! Get this disk!+Y
- PT043/5 HOUSE SAMPLES 3 disks full of house samples!
- PT046 AUDIO MAGIC3 Super trackers disk, ok on 1200+Y
- PT047 AUDIO MAGIC4 More Superb music programs! + Y
- PT048/52 MODULES 5 disks of large music modules!+Y
- PT053/57 METAL MODULES 5 disks heavy rock/metal! +Y
- PT058/62 BREAK BEATS 5 disks of drum samples+Y
- PT063/67 VOCALS 5 disks of super vocal samples!+Y
- PT068/70 DRUMKITS 3 disks of high quality drums!+Y
- PT071/73 KORG SAMPLES 3 disks of keyboard sounds+Y
- PT074/76 PURE SAMPLES Lots of assorted samples!+Y
- PT077 SAMPLE FACTORY Disk full of sound effects!+Y
- PT078 CHIPMAN SAMPLES over 70 samples here!+Y
- PT080 XI RAVE SAMPLES Bass & Drums! +Y
- PT081 SAMPLEMAKER V3.1 Make samples, +Y
- PT082 CLASSICAL MODULES On a classical theme! +Y
- PT083 MUSIC ENGINE V1.34 Multiformat music player+Y
- PT085 NO SAMPLER UTILITIES Music utilities! +Y
- PT086 CHIPMAN SAMPLES II More samples! +Y
- PT087 CHURCH MUSIC Religious sonix music! +Y
- PT088 X-BEAT V1.1 Exellent drum machine program!+Y
- PT089 AUDIO MAGIC5 Some new tracker programs.+Y

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- PG341 MUCUS Platform puzzle & a slideshow! +Y
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- PG343 DITHELL IN SPACE Demo of platform shoot up+Y
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- PE071 FRENCH VERB TESTER Test your French! +Y
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- PT092 SOUND EFFECTS 3 VEHICLES Cars starting etc+Y
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- PU469/70 SCALA BACKGROUNDS Hires backgrounds(2)+Y
- PU471 CDTV-CD32 ADAPTOR How too make your own.+Y
- PU472 SOLDERING DISK Learn how to solder! +Y
- PD225 XANADU DEMO Superb colourful AGA only demo! Y
- PD226 GROOVY by Lemon,super graphics demo! +Y
- PD227 IMPACT NO LEM Super kaleidoscope effects.+Y
- PD228 SILENTS SOZZLED SOMERSAULT Fab effects! +Y
- PD229 SANITY BOOGLEDOP Very nice cartoony intro +Y
- PD230 TBL NUGGET Some great plasma patterns.+
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- PD233 PERSPEX HYPNOSIS dancing silhouettes AGA only!
- PD234 HELIOTROPIS DEMO fantastic anim starts demo!+Y
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- PD236 PEARL SATISFACTION GUARANTEED Nice +Y
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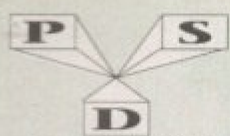
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D13...Total Remix Demo
D14/15...Predators(2)
D20/21...Red Sector(2)
D24/25...New Tek Reel3(2)
D26...Total Remix 2 Demo
D27...T.V. Theme
D30...Epic Demo
D34...P.D. Collection
D36...Virtual Worlds
D37...Vectra Sinking Demo
D38...TFF Demo Voyage
D40...Safy Demo
D59...Video Effects 3D
D64...Cult Vector Dance 2
D68...Phenomena Demo
D70...Amos 3D Demo
D74...A Trip To Mars
D76...A2000 GenlockDemo
D81/82...Budbrain 1 (2)
D83...Budbrain 2
D85...Crionics Neverwhere
D87...pirhana demo
D101...Alcatraz M/Demo 3
D102...A Chaplin Demo
D103...Total Destruction
D105...Mr B Demo Comp 4
D106...Walter S.T. Demos
D111...Defcon 1
D117...Aurora M/Demo
D118...Cult M/Demo 2
D125...Precise Demo
D133...Fasination
D136...Goldfire Megademo
D137/138...So What (2)
D139...Devils"No Reality"
D144...The Silents "Ice"
D145...Crystal Symphonies
D148...Ray Of Hope 2
D149...No Brain No Pain
D158/159.Cyborg Demo(2)
D195...Coaxial Comp
D197...MC Disk 1 Coma
D199...End Of Century 1999
D206...Dreamers 3
D208...Avengers M/Demo
D216/217...Bass o Matic (2)
D218...Disorder Demo
D219...Tuff Enuff
D225...Cool Fridge Demo
D226...Hardcrack M/Demo
D233...Hypnautic Hammer
D235...Six Of One Demo
D238...Planetside
D239...Lemmings Revenge
D240...Total Respray
D243...Budrain 3
D244...Phenomena Inerspace
D245...Total Retrial
D247...Pulling The Trigger
D253...CES Demos
D256...Total Recount
D257...Total Rebate
D262...Spasmolytic
D264...D-Mob M/Demo
D267...Sun Connection 2
D270...Kefrons The Wall
D271...Timex Hydra
D272...Electric Demos 1
D274...Defpackers Demo
D276...Cave La Weird
D279...Iraqui Demo
D280/281...Delerious (2)
D307...L.S.D. Demo
D312...Devils Colours
D314...Trakmo
D315...The Groove Ramjam
D325/326...Real Empathy(2)
D328/329...Red Dwarf (2)
D330...Darkness M/Demo
D332...Melted Experience
D333-337...Odyssey (5)
D340...Watchman Demo
D341...Anarchy Smoker Co
D342...Ed 209 The Revenge
D343/344...Hardwired (2)
D345...Wildfire M/Demo
D347...Mindwarp M/Demo
D348/349...Skizzo Demo(2)
D350-352...Treacle Team(3)
D358...Mr Men Stories
D359...Seeing Is Believing
D360...State Of The Art
D361...Mayday Resistance
D362/363...Jesus On E's (2)
D364...Fish Tank
D365...Optimum Pressure
D366...Mind Riot
D367...InThe Can Demo
D368...Dynamic Illusions
D369...Piece Of Mind
D370...3D Demo 2
D371...Lethal Exit
D376...World of Commodore
D377...Claustraphobia
D380...Hoover Demo
D381...The Trip
D382/3...Project Techno (2)
D384...Interspace
D386...Mindwarp (AGA)
D387...Panta Rhei (AGA)
D388...Hysteria
D393-5...Grapevine 15 (3)
D396-8...Grapevine 16 (3)
D399-401...Grapevine 17 (3)
D402...In The Kitchen

UTILITIES

U1...Games Music Creator
U21...The Comms Disk
U32...Modem Utils
U34...Red Devils Utils 1
U35...Soundtracker Special
U38...Paint,Music,Media
U39...Card Designer
U41...Red Devils Utils 4
U43...Future Composer
U44...Kefrons Makeboot
U45...P.E Giant Utils 168
U47...Label Designer
U49...Ultimate Icon Disk
U50...Power Comp Utils
U51...Jazz Bench
U55...Visicalc
U57...Quickbench
U59...Font Designer
U60...D-Paint Fonts 1
U61...D-Paint Fonts 2
U62...Med 3.20
U63...Direct Anim Creator
U64...Crossword Designer
U66...CLI Help + Others
U67...S/Tracker Mega
U68...Ultimate Boots 1
U69...Ultimate Boots 2
U73...Powerlogo
U74...M-Cad
U75...Journal Home Acc's
U76...Home Utilities
U77...Electrocad
U78...Ami Base
U81...Boothench V2.0
U82...Slideshow Maker
U83...Catalog Workshop 1
U84...Catalog Workshop 2
U87...Hard Disk Utils
U89-94...Amateur Radio (6)
U95...C-Light + Others
U96...GFX Utils 1
U100...Ham Lab
U101...Sid V2.0
U108...A-Gene
U113...Midi Utilities
U118/119...Video Utils (2)
U132...GFX Utils 2
U133/134...North C (2)
U136...CrossDoss (demo)
U138...Squid Squad Utils
U139...Terminalities V1.0
U140...Squash 1 (2.04 only)
U141...Squash 2 (2.04 only)
U142...Text Plus 3
U144...Dennis Samples 1
U145...Digital Intro Design
U146...Viz Clip Art
U147...Spectrum Emulator
U151...Slipstream V/Killers
U152...Red Devils Utils 6
U154...Amigafox W/P
U155...P.D Utils Docs Disk
U161...Quickbench + (2.04)
U163...Rim Database
U166...Dennis's Hack Disk
U167...Demolisher Utils
U168...Home Business 3
U172...Squelch (1.3 only)
U176...GFX Utils 3
U177...Star Charts
U179-180...Dice (2)
U181...Celtic Demo Maker
U186-206...Track Ins 10-30
U207...Icon Collection 1
U209...Dave Jones Fonts 1
U211...Chemesthetics
U212...Animated Pointers
U213...Desk Top Publisher
U215...Messy Sid 2
U216...Master V/Killer 2.2
U218...Data Base Wizard
U223...Ten Pin Data Base
U224...Q-Base Data Base
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U231...D-Paint Fonts 3
U235...Ami Cash V1
U238...Iconmania
U240...Icon Editor
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U254...New Superkillers 2
U255...Protracker v2.0
U256...Atari ST Emulator
U258...D-Copy 3
U262...PC Emulator
U273...Vidi Fonts 1
U274...Illinoi Labels
U275...600 Business letters
U279...Invoice Printer
U283...Headline Fonts
U289...Amos Updater
U290...Kickstart 2.0
U293...Black Tiger Utils 2
U294...Text Engine V4.0
U296...Ultimate Disk Crea
U297...10 PD Copiers
U298...Protracker V3.0
U299...Address Print V3.1
U303...Game Tamer
U308...Music Base V1
U309...PP Minicrunch
U311...Vmorph V2.30
U313...Pro Astrology
U314...Pools Wizard Jr.
U319...Lister V2.1
U320...Garden Designer
U327...Bezier Surf
U329...Music Engine V3.4
U330...Starview
U331...X-Beat Pro
U332...Superview V2.4

GAMES

G1...Return To Earth
G2...Games comp 5
G3...Dizzy Lizzy
G4...Scum Haters
G5...Parachute Joust
G6...Frantic Freddie
G8...Twintris
G9...Psuedo Cop
G10...Drip
G11...Bug Bash
G12...Asteroids
G13...LLamatron
G14...Escape From Jovi
G15...Moria Adventure
G16...Ground Attack
G17...Megaball
G18...Insiders Club
G19...Various Adventures
G21...Battleforce
G22...Dragon Cave
G24...Rings Of Zon
G25...Mayhem
G26...Mechflight
G27...The Tennis Game
G28...Flaschbier
G29...Buck Rogers
G30...Greyslayer
G31...7-Tiles
G32...Mega Comp 1
G33-34...Star Trek 1 (2)
G35-37...Star Trek 2 (3)
G38-39...Mechforce (2)
G40...Klondyke
G42...Car
G43...Games Comp 2
G44...S.E.U.C.K. Games
G45...Sacc Games Comp
G46...Games Comp 3
G48...Rays Game Disk
G49...Games Comp 4
G50...Games Comp 6
G51-52...Trucking (2)
G53...Jetpac
G55...Quick And Silva
G56...Miniblast
G57...Lamer Game
G58...Games comp 7
G59...Games comp 8
G60...Pom Pom Gunner
G61...Caverunner
G62...Crystal Caverns
G63...Intact
G64...Eternal Rome
G65...Lemmingoids
G66...DownHill Challenge
G67...Lame ST Ports
G68...Paranoid
G69...Puggles
G70...Chainsaw Death
G71...Pirate Pete's Treasure
G72...Serene 2
G73...Castles
G74...Dynamite Dick
G75...Card Games 1
G76...Wizzy's Quest
G77...Growth
G78...Skate
G79...Atic Atac
G80...Napoleonic Sim
G81...Project 1
G82...Lazer Zone
G83...Lemmings Pack
G84...Star Trek S.E.UP
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G97...Shootout
G99...Holy Grail Adventure
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G101...Classic Comp 1
G102...Card Games 2
G103...Super Skoda Chall
G104...Grand Prix Sim
G106...Computer Conflict 2
G107...Mission X Raid 2
G108...NU Game
G110...Tricky + The Turn
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G113...Black Jack Lab
G114...Dungeon Of Madroj
G115...Amiga Columns
G116...Robocop In Iraq
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G124...Bart Simpson
G126...Air Ace 2
G127...Breakout Con Kit
G128...Pipeline
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G133...Star Trek 3
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G139...Door To Door
G143...Solid Quad
G144...Omega Race
G145...Mission X Raid 3
G146...Trek 73
G147...Wonderland
G148...Squats Revenge
G149...Sky Fight
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G206...Cheats Disk 3
G208...Airport
G209...F.R.A.C.
G210...The Golden Fleece
G211...Legend of Lothian
G212-214...Timelords 6-8
G215...Amos Games 1
G216...Super Sid
G217...Light Bikes
G218...Relayer
G219...Air Hockey
G220...Amos Child Quiz
G221...Texas Chainsaw
G222...Roulette
G223...Premier Pics
G224...Thrust Duel
G225...Wibble Giddy
G226...Super Pong
G227...Fruit Salad
G228...Brainbow
G229...Jeopard
G230...Space Invasion
G231...Karate Worm
G232...Super League Manager
G233...PD City Comp 1
G234...Colour Changes
G235...Battle Of Britain
G236...Super Twintri
G237...Castle
G238...Numtris (+ Only)
G239...Kung Fu Charles
G242...Micro Market
G243...Bload Runner

S79...Freddies Dead
S80...Wendy James Slides
S81...The Invisible World
S82-83...Terminator 2 (2)
S84...Fantasy Pics
S85...Gulf War Slides
S86...Magical Pics
S88...Gulf War Tribute
S89-90...S/Thing Fishy (2)
S91...Eldorado Slides

SLIDES

S1...Ham Pics Show 1
S4...Madonna slides
S5...Moviestar slides
S6...Party Disaster
S8...Immaculate Collection
S9...Simpsons Slides
S10-11...Channel 42 (2)
S12...Bruce Lee Slides
S14...Adams Family
S15...Viz Mag Slides
S17...Docklands Jarre
S18...Dr Who Demo
S20...Nasa Slides
S22-24...WWF Slides (3)
S27...Demons Slides
S28...Total Recall
S29...Joe's Slides
S30...Ham Pics Show 2
S32...Neighbours Slides
S33...Roger Dean slides
S34...Iron Maiden Slides
S35-36...Tobias Richter (2)
S38...Basket case 2
S39...Eces Slides
S40...Fraxion Devine 2
S41...Fraxion Devine 1
S42...Golems Gate Slides
S43...Chainsaw Slippers
S44...Cry For Dawn
S45...Forgotton Realms (2)
S47...Kick Off 3 Slides
S48...PD Slideshow
S49-52...Terminator (4)
S53...Robocop 2 Slides
S54...Trackmaster Slides
S55...Forgotton Realms 2
S56...Garfield Slides
S57...Pawnbroker Slides
S58...Hellraiser Slides
S59...Night Breed Slides
S60...Raytracing
S61...Horror Slides
S70...Muscle Mania
S71...Creature Comforts
S72...The Wonder Years
S73...Watership Down
S75...Ferrari 348 Pics
S76...Belinda Carlisle
S77...Cher Slides

ANIMS

A1...Probe Sequence
A2...Ghost Pool
A3...Jogger + Magician 1
A4...Gymnast Demo
A5...Fractal Flight
A6...Basketball Demo
A8...Walker Demo
A9...Magician 2
A10...Pugs In Space
A11...Luxor Teenager
A13...Juggler Demo
A16...Cool Cougar
A17...Mono Cycle Anim
A18...Robocop Anim
A20...Mayhem On Wheels
A21...Jugette 2
A22...Shuttlecock Anim
A23...T-Pot Anim
A27...Fleet Manouvre
A28...Billiard Anim
A29...E/Prise Leaves Dock
A30...Starwars 2 Anim
A31...Star Trek Anim
A32...Fraxion regener
A34...Madonna Anim
A35...Stealthy Anims 2
A36...Raiders Of The L/Ark
A37...Bugs Bunny Show
A38...Iraq V's UK Anim
A39...Mike Tyson anim
A42...Walker 2
A43...Walker 3
A45-46...Light Cycle (2)
A47...Exploding Head
A48...Police Car Chase
A49...Top Gun Demo
A50...Animators Demo
A51...5 Ways To Kill a Mole
A52...Another 5 Ways
A53...Batman The movie
A54...3D Spaceship
A55...Mr Potato Head
A59...Low Level Flight
A63...Amy V's Walker
A64...Real Pinball Anim
A66...Porky Pig Anim
A67...Adventures Of Chuck
A70-71...Max Overdrive (2)
A73...Spaceshuttle Anim
A74...Ghostbusters + Horse
A76...Alarm Anim
A77...Flight Anim
A78...Piano Anim
A79...Dart Anim
A80...Bad Bird Anim
A81...Holiday Anim
A82...Fillet The Fish
A85...Miners Anim
A86...Pocket Watch Anim
A90-93...The Movies 2 (4)
A95...My TinToy
A96...T-Pot 2 Anim
A99...Terminator 3
A100...Dolphin Dreams
A101/102...Thunderbirds (2)
A103...History of Amy
A104...Pogo Anim (2 Meg)

EDUCATION

E1...Education Pack 1
E2...Education Pack 2
E3...Education Pack 3
E4...Education Pack 4
E5...Education Pack 5
E6...Education Pack 6
E7...Educational Worlds 1
E8...Educational Games
E9...Math Drill
E10...Amiga Function Com
E11...Devware Ed Comp
E12...Simon Says + S Maths
E14...Kids Paint
E15...Storyland 2
E16...Colour It
E16...Colour The Alphabet
E17...D.T.P. For Children
E18...Algebra
E19...Amosagram
E20...Animal Land!
E21...Animal Sounds
E22...Military War Sounds
E23...Vehicles Sounds
E24/25...Read & Learn 1 (2)
E26...Junior Maths

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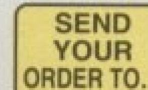
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Licensing is big money. From sports and arcade games to films and comics, software companies are regularly vying to lay their hands on the next blockbuster title – Mortal Kombat from Acclaim and Jurassic Park from Ocean have been staggeringly successful worldwide, the names themselves selling the product by the truck-load to eager fans.

In theory at least, the idea of licensing is a sound one – programmers, graphic artists and game designers have access to a wealth of characters, storylines and other potential areas, offering the opportunity to exploit the material for what it's worth and give the punter an addictive and playable title in return.

More often than not though, the reality seems to be customers walking away from their computers after a five-minute play on many of these tie-ins feeling more than a little ripped off.

Any potential has been swiftly replaced by a haggard and ancient game design, flaccid graphics and lasting appeal of the type usually associated with a funeral.

The end result is a product that looks as if it has been thrown together in a week, and is sold purely on its name to the unsuspecting games-player.

Ocean have a long history of (mainly film) licensing, from the low standards of Darkman, Dennis and Terminator 2 to the highly playable likes of Robocop 3, Addams Family and the Untouchables.

The Manchester-based company have achieved a financially successful series of products, but have they been fair to their customers?



A licence too far?

The computer game has become big business, a money-spinning and accepted part of merchandising, but is the customer getting value for money? Adam Phillips interviews Ocean's marketing manager Simon Alty about their past track record and what the future holds

Q Why have Ocean involved themselves so much with licensing, and do you intend to continue investing in this area?

A We will continue to involve ourselves with film licences in the future but to a much lesser extent than we have done in the past. The simple reason is the length of time it now takes to develop a quality game.

Q Has that been a problem in the past?

A It has been a problem in the more recent past, but in the future, with certainly the CD platforms coming through, the length of development is a minimum of two years. Now, you don't pick up a film licence sometimes until within a year of the intended release of the film.

You desperately try to coincide the release of the game with the film. That's become an impossibility.

Q Is that one of the reasons why some licences can be so bad – because they are rushed jobs?

A Depends how you define bad, but yes...

Q As in clichéd, unplayable?

A "Clichéd", "unplayable" – nice strong terms there. Yes, I accept that some of them have become clichéd, they were probably the perfect vehicle in the beginning, such as the Batman titles.

I also accept that the time constraint which is put on developers must invariably stub creativity. If you take the old adage – a game is never finished – then they are developing a game in a shorter period of time than they would like.

Q Is using licences simply a safe route to financial gain?

It isn't a safe route, nothing in computer games is a safe route...

Q Is it safer?

A It is safer in terms of marketing but we pay a substantial amount of money for a licence because it quite simply provides a massive pre-awareness of a product before we've even started. I say *Jurassic Park* to you, you don't need to know anything about the computer game except what the content of the title is.

If I say to you, for example, Jelly Boy, which is game that we've got to sell this year, it's an excellent critically-acclaimed game but I have to start at square one which means – again – we have to spend more money on the physical marketing of the product.

> "Kids are so sophisticated now that you have to get the product right first so that any licence you pick up is just an aid to the marketing"

Q Do you think, then, that there is a better chance of people buying a game if it is a licence?

A Yes certainly, especially in the peak Christmas periods when a parental purchase becomes paramount – a parent pops along to the local store and wants to get a game for their son or daughter.

They usually have no knowledge of computer games. If they're lucky, they've hopefully managed to suss out which games machines they have to buy for. They then look around.

They've heard about this nasty Mortal Kombat thingy. So, for example, [they'll say]: "Oh, there's Jurassic Park, now that was a great family film," or whatever: "Home Alone, that was another great family film, I'll pick that up."

There are certain values that people attach to films, for example *Jurassic Park* – quality, entertainment – that are then subliminally associated with our product.

Q On a more personal note, they go into the shop and buy the game. The kids get it and it's a poor game. Does that bother you or is it a case of "this is business and that's the way it is"?

A That could be very crass to say "this is business, pal, that's the way it is" because the proof of that pudding is that this market is now completely driven.

It has changed, it is completely driven by market... err, by school and playground buzz. We might receive great day one sales for a poor product, but it will then fall apart ➤

very quickly. What we managed to achieve with Jurassic Park was great day one sales because of parental purchase, because of the "must-have" buy, because of the reviews that were already established in the press.

Then word gets around that it is a good game. Kids see their mates playing it and want to get it themselves and so you continue on a line.

You can draw exactly the same analogy these days with films themselves having massive first weekend sales before dying because the public don't like them.

You can't kid the public, and kids are so sophisticated now that you have to get the product right first so that any licence you pick up is just an aid to the marketing.

That sounds quite pompous from where you're sat, coming from Ocean who have produced both good and bad games over the last few years in relation to film licences, but our attitude has completely changed.

If companies do continue to produce poor licensed games, do you feel that they will do the software industry more harm than good, with customers becoming wary and less eager to part with their cash?

I think that those companies would be fools to themselves. I don't believe that it will damage the industry because the kids have plenty of other choice from original product coming through to vote for with their pocket money.

So, you'll continue to get vast amounts of money paid out on film licences, but then they'll get dumped somewhere along the line.

Are there any promises you'd like to make about the standard of licensing in the future?

We will pick up a licence where we feel that we already have a project in development that can be associated with that licence.

For example, let's say we've been working on a space game for a year and then a space movie comes along the lines of *Star Wars*. We would pick up on that and could easily adjust the graphics having got the gameplay right first in association with the film.

You cannot release a film licence product these days which isn't going to get a 90 per cent review. We do work on such small margins that we have to see a return.

How has Jurassic Park been selling?

Due to it being a good game and receiving 90 per cent reviews, it has been our best selling game of all time, and that was a combination of the ability to market a high profile licence, and having a good game, working together in the toughest Christmas market we've ever had.

Thank you for your time.

● If you have any comments or questions about this month's interview then send them to us at the usual address. If you know of any area in the computer industry that you feel would benefit from a visit by the Devil's Advocate, then drop Amiga Computing a line at the usual address.

Jurassic Park has performed exceptionally well and, while not being a classic game, it's certainly a step in the right direction



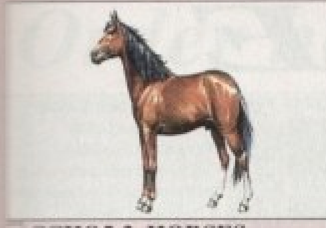
...but with Dennis, an abysmal platformer released at around the same time, is it a case of one step forward and two steps back? Time will tell...

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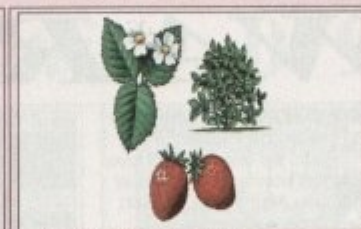
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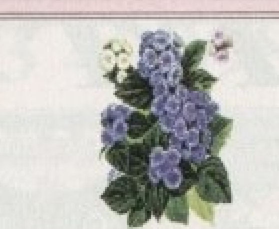
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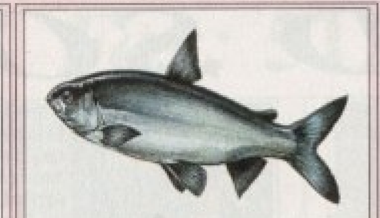
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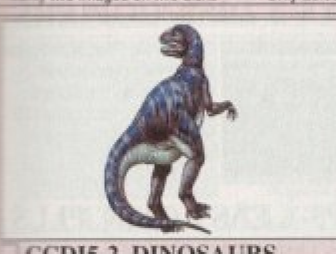
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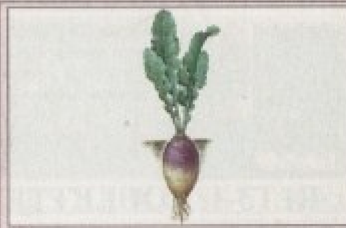


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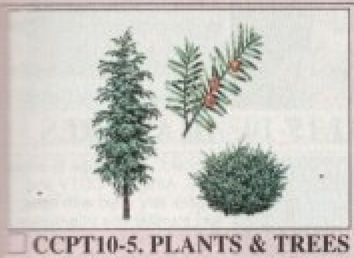


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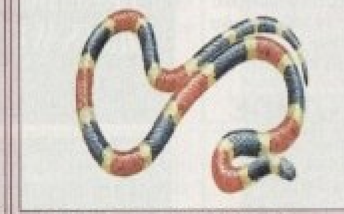
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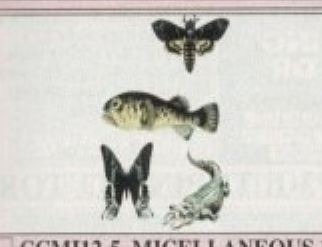


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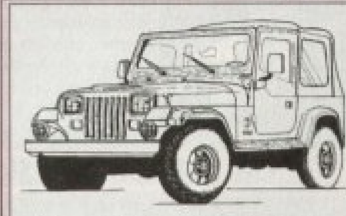
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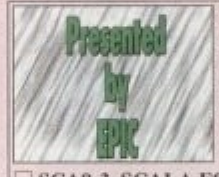
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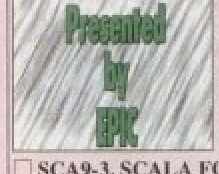
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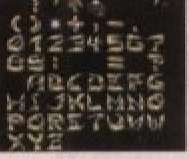




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public sector

Amiga Computing *searches the libraries of the world to bring you the latest reviews from the public domain.* Adam Phillips *examines the talent*

Listen – pick up the phone, dial the number of the program of your choice and order it. You won't be disappointed with the few pounds you spend. The Amiga public domain is alive and kicking...

Gunfighter

Programmed by: Overdose Software

I don't remember any game ever attracting quite the attention that this title received – people crowded round the monitor to witness two games-reviewing gunfighters struggling to be the quickest on the draw.

Might sound like nothing special; in fact it's based on an ancient arcade game. The main differences between the old version and this update are the digitised graphics of each cowboy as they face each other, waiting for the digitised voice to cut in saying "draw!".

On hearing the command, the quickest player to pull out their gun and fire wins the round. The opposition collapses in a pool of blood and it's time to move on to the next go. There are five shoot-outs in all and the person who wins the most is the overall winner. There are variations on the theme – it's possible to choose a short cowboy from the library of two characters; when shot for the first time, his hat will simply fly off and another volley from your apparently semi-automatic machine gun is required to finally put him to rest.

This is hugely simple stuff but with the attention to detail and individuality on offer, with the Plasticine cowboys and their humorous look, this is a great two-player title that deserves a look in.

Available from: 17 bit PD



Fast reflexes are vital in Gunfighter – a minor PD classic

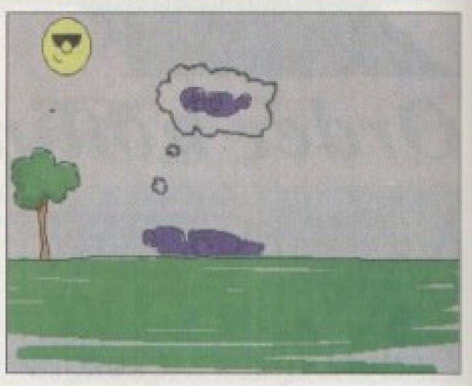
ANIMATION of the MONTH

Flying Lessons

Created by: Steve Attewell

We receive many animations. These are usually 3D ray-traced wonders which regularly take your breath away with swishing angles and plush shading, but sometimes lack any real character or life that makes animation such a interesting and vital medium. These demos also usually last about five to 30 seconds where, refreshingly, Flying Lessons boasts approximately a two-minute 30-second, humour-filled, soulful animation that shows real talent.

The main character is called Bob, who looks like a blob. One day, while settling



Watch Bob learning to fly in this two-and-half-minute animation



Titanic is an extensive educational package – on this screen, it's possible to click on a person and be given a brief history of the role that they played on the ill-fated ship

Titanic

Produced by: Paul Thompson

Disasters, and especially the human variety, have on regular occasions spawned thousands of articles, television programmes, books and, in some cases, films.

Most exploit, but some highlight the human strength and courage that it took to overcome the tragedies. It's good to see – as ever – the public domain showing its metal in dealing with a horrific incident in a responsible and professional manner.

Titanic is a comprehensive and extensive telling of the ship's birth and subsequent death. As well as this, there entries on other aspects of the now legendary ship that its makers said could never be sunk – the media reaction, the people on board and even the list of the food used in the galleys. This is all supported with music, digitised stills and diagrams.

Produced on the Scala multimedia package, the proceedings have a very professional and polished look, with many useful options and help keys. There is also a wealth of text to plough through which is well written and, to be honest, gripping and horrific in places. The package's main

down for a sunbathe, he sees a bird and dreams of flying himself. On waking up, he has an idea and sets out about making this fantasy a reality.

What follows is the story of his three attempts to fly, shown in Rhubarb and Custard style with flickering, constantly shifting line drawings and a basic colour scheme.

There's a real feel of comic timing through out most of the piece and the style in which it is drawn is ideal and full of character. Bob's movement's are subtle and well-planned and shows its creator's talents in a very good light.

Flying Lessons is an imaginative, simple breath of fresh air and deserves to be part of any serious animation collector's selection. Highly recommended.

Available from: S Attewell

strength is the accessibility – with its good looks and an involving operating system, this is simply more interesting, especially for a younger participant, than a book, and shows off how a computer can be used as serious teaching tools.

Of all the educational titles I've had the fortune to review over the last few months, Titanic is the best I have come across. Superb.

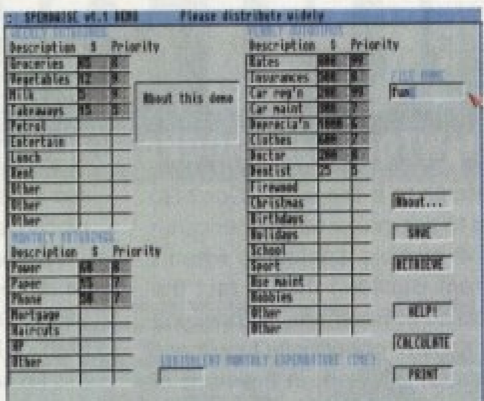
Available from: Educational Software Disk No CLE 54B

Sonic Drum

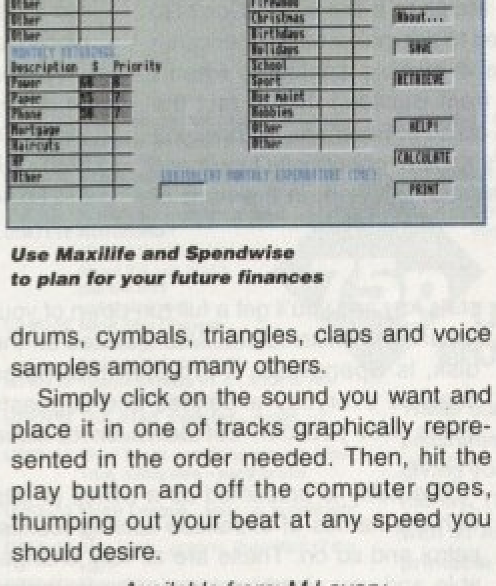
Programmed by: Malcolm Lavery

One of the most exciting developments of the computer age is the opportunity for everyday people to flex their creative muscles. Through the use of technology, subjects are demystified and in many cases, made more simple to us, because a computer is ideal medium for laying ideas out in a clear and thorough way.

Sonic Drum is one such facility for venting your artistic yearnings in to a constructive and satisfying end result. Presented in simple and easy-to-use icons and symbols, the user has four tracks to fill to the brim with sampled



Use Maxilife and Spendwise to plan for your future finances



drums, cymbals, triangles, claps and voice samples among many others.

Simply click on the sound you want and place it in one of tracks graphically represented in the order needed. Then, hit the play button and off the computer goes, thumping out your beat at any speed you should desire.

Available from: M Lavery

Maxilife & Spendwise

Programmed by: Marc Fontein

Thanks to some healthy, right-on thinking New Zealand programmer, we now have the pleasure of two positive thinking, forward planning, burying-the-past utilities that are actually rather useful.

Maxilife may sound like a coffee brand but is in fact a future financial planner. By entering your monetary details such as your salary, rate interest and any debts that you might have (shame on you!), the program is capable of working out your money and how much you'll have after certain period of time (five years and so on).

Each option has a useful help feature that explains exactly what you need to do in that particular section. There's only one real problem – instead of entering balance per year like you're supposed to, you can't – the program actually asks for any debts you might have which is a little confusing.

Once all details have been entered, hit the

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Calling all PD libraries...

...and individuals with anything remotely worth my while having a peek at. If you want something released as PD, or you're a library with stacks of hot new stuff that you haven't seen reviewed in these pages yet, why not drop me a line with a copy, full documentation and everything clearly labelled? I promise I'll at least look at your work.

Adam Phillips, PD submissions, Amiga Computing, Europa House, Adlington Park, Macclesfield SK10 4NP



Scan is Lame

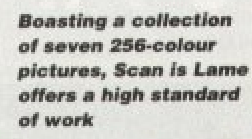
Produced by: Syntex/Tenebres
Available from: Jorvik Public Domain
Disk No SS0282

Coming on two disks, Scan is Lame is presumably a tribute to the artist's hand-drawn talents rather than relying on a piece of equipment with no artistic merit whatsoever to do all the work.

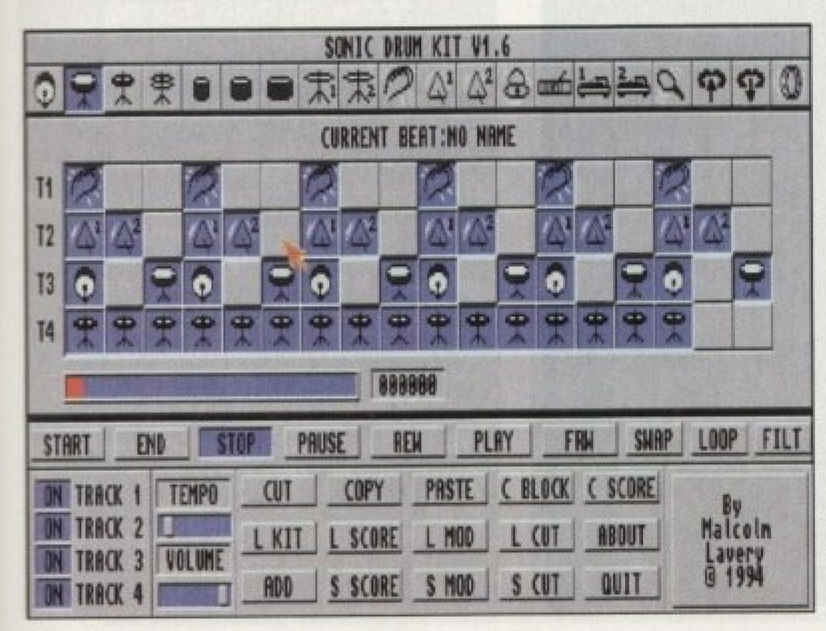
Syntex/Tenebres's attempt at making a point is backed up with some excellent 256-colour AGA pictures that are of a very high standard. If you're expecting Francis Bacon or Monet then don't look here, but if you're after some commercially-oriented pictures then this package is worth its weight in gold.

There are seven images that can be chosen from the main screen. Each is named and is on a part of a jigsaw – simply press on the one you want and sit back and enjoy the view.

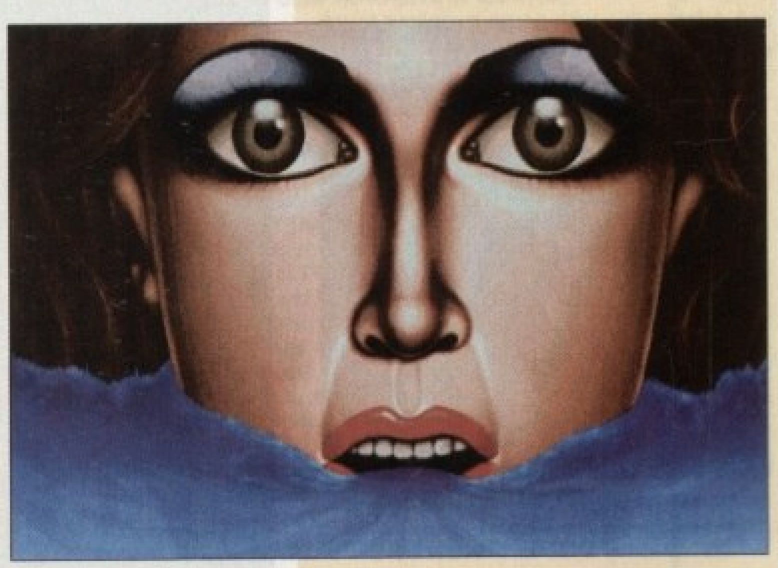
Names include Woman, Top Model, Future, Jurassic, Easy Rider, The Car and Spirit of Ecstasy. A few of these images are a little risqué but no worse than anything you might find on the walls of some hip restaurant in Camden Town. Highly recommended.



Boasting a collection of seven 256-colour pictures, Scan is Lame offers a high standard of work



Select different drum beats for your composition and play them back at full volume in Sonic Drum



Time Runners

Programmed by: Simulmondo

There I was, quietly sitting at my desk, going through this month's offerings from the libraries and individuals and coming across this disk. On loading up, I was presented with addresses for Italy, which instantly generated a strong feeling of curiosity; I rarely receive anything from Italy, and after viewing this game, I hope I'll be receiving a lot more.

On loading, a menu pops up asking if you'd like to see the video story or plough straight in to the game. Choosing the game, a series of reasonably drawn pictures appear telling the story of the hero and how he and his various friends travel through time until one of them, Jessica, is held hostage by the Blue Skunks.

The basic premise is to find your lost time-travelling scooter, fill it up with petrol and get her in the right time period. After this interesting plot, I was eager to press on with the game itself!

Once loaded in, the player is presented with a large central sprite in the vein of Conrad out of Flashback, the platforming classic from last year.

The man can be made to jump, leap, run, walk and crouch – albeit not as smoothly as Delphine's creation but for PD, it's impressive stuff. As far as I could tell, the object is to run around hitting the enemy, that come in the shape of robots when inside the complex at the beginning, and caveman when outside in the jungle and caves.

Chasms need to be leaped, and on discovery of the scooter, a logic puzzle game pops up where you have to work out how to get the wretched thing started.

Dinosaurs are another common occurrence, with tyrannosaurus rex and triceratops making appearances in a couple of cut-away scenes encountered during your travels.

The graphics are of a high standard, and although no way as smooth as Flashback, are still pleasing to the eye. The main criticism for most of the game is that there is really not that much to do other than hit, leap and run along. Having said that, there is enough here to warrant a purchase to see a large title with some excellent touches. Keep it coming, Italy.

Available from: Jorvik Public Domain Disk No GAO 158



Walk, run, jump and leap your way through Time Runners, a variation on Flashback...

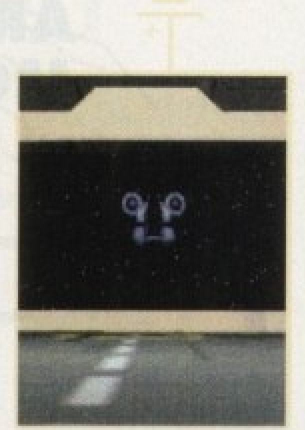
Heading for Home

Produced by: M Bareham

You may recall a couple of months back when I awarded the Animation of the Month to a title called *Don't Go in the Cellar* that I referred to the maker as a American.

Imagine my horror and humble apologies when I received a phone call from Basildon that in fact the author is an Essex man called M Bareham. So now you know. Fortunately, here's another opportunity to witness some more of his ray-traced, 3D work in the form of Heading for Home. The actual anim is very short indeed – about ten seconds in all – and shows a spaceship coming in to dock at a space station. The work is certainly accomplished but the length of the piece (understandable really given the power and memory needed to run it) is a bit of a let-down, especially after his latest piece *Don't Go into the Cellar*.

Having said this, if you're after a show that boasts the usual high standard that the Amiga can achieve in all things Disney and if you have a machine with at least 3Mb of RAM and Kickstart 2 or higher, then indulge in this luxury.



A short-lived but good looking anim, Heading for Home, shows a spacecraft coming in to dock

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stats key and you'll get a full run-down of your glittering financial future. Also included on the disk, is Spendwise, a program that helps analysis everyday expenses and suggests items that you can cut down on to save money.

The utility is presented as a series of lists with the names of expenses such groceries, petrol and so on. These are all fully changeable and you simply enter via the keyboard how much you spend each week on each item. You then prioritise it by entering a number from 0 up to 10, which indicates an essential expenditure such as having to catch the bus in to work in the morning.

Once all this has been inputted, the user can call up a stats list with a breakdown of what money is being spent and suggestions for where money can be cut.

These are both interesting and useful planning tools which in the words of the author, help you live life to the fullest. Hmm...

Available from: Scribble PD Disk No U298

Blaster

Programmed by: J R Evans

Whatever people's tastes are in games, whether it be arcade, strategy or adventuring, there always seems to be space for a good, hardcore shoot-'em-up that boasts addictive and exciting gameplay.

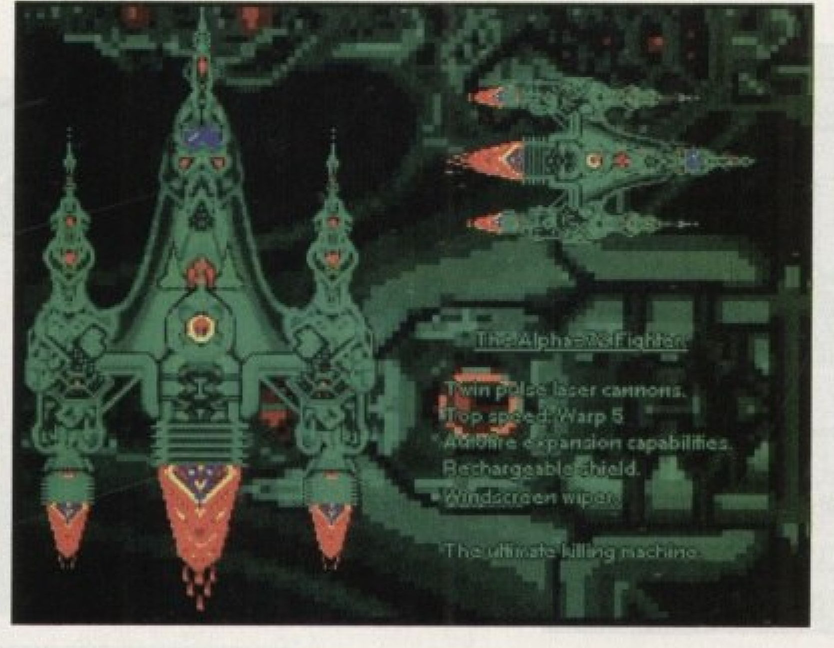
Take Blaster – it looks from the screenshots as being a pretty average looking title but put the disk in the drive, pick up the joystick and you won't put it down for quite a while. There are no frills, just thrills as you guide you ship through a vertically scrolling blast fest that nearly reaches the frenzied heights of Llamatron.

There are apparently 140 different types of enemy to take pot-shots at and this alone guarantees that there's always something a little different to see on each planet – even if they are difficult to see sometimes against the background.

The action is fast and furious and never lets up for a second. Throw in a pile of power-ups that descend from the top of the screen increasing firepower, lives and many other features, and you've got a game that you must buy – so why are you still reading?

Available from: Scribble PD Disk No U298

Shoot everything that moves and just try and stay alive in Blaster, a frenzied shoot-'em-up



Lay your hands on me

Malcolm Lavery
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Make cheque out for £5 payable to Malcolm Lavery

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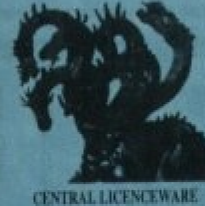
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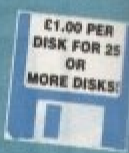
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- U73 **DIRWORK**
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- U85 **ELECTROCAD DEMO** Latest circuit design
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- U190 **SID V2.0** Dir tool, excellent
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- U230 **INSTALL** Install your disks without the CLI
- U242 **MSH V1.3** Handles MSDOS files
- U260 **SUPERLOCK V1.01** Security prog. lock off Amiga
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- U271 **NBS SPEEDBENCH** Fast loading W/Bench
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- U297 **COMPUTEREYES ICONS**
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- U318 **MULTIDOS** PC>Amiga
- U320 **CLI-UTILS** Very useful
- U321 **AMOS 1.34 UPDATE**
- U323 **WINDOWS BENCH V2.0** (2 disks)
- U330 **FLASHDISK RELEASE 3** Optimiser
- U332 **ASSASSINS HANDY TOOLS V3.0**
- U343 **WORKBENCH HACKS** (A500+/A600*)
- U346 **PROF DEMO CREATOR V1.1**
- U349 **SUPER POWER PACKERS**
- U351 **WORKBENCH HACKS**
- U352 **C-COMMANDS**
- U361 **RDM** Directory util
- U391 **HACKTAR 1.6** Adv Creator
- U392 **STD CODE FINDER U.K.**
- U393 **RAD BENCH 1.4** Make use of your RAM
- U399 **TOGGLE CLICK** A600/A1200 only-Stops drive click
- U404 **ENGINEERS KIT** Diagnostic tools
- U408 **TOOLS FANTASTICA**
- U412 **LYAPUNOVIA** Picture generator
- U413 **ARESTAURE** Mends deleted files
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- U415 **P-COMPRESS** Packer
- U416 **S-TEXT** Text packer
- U421 **KINGFISHER** Fish index to 840
- U423 **LYAPUNOV** Fractal generator
- U424 **ICON AUTHOR** IFF images for Icons
- U425 **AUTOSAVE** Save at intervals automatically
- U426 **EASY BENCH** (2 disks) WB2 and above
- U427 **MENU MASTER 3**
- U428 **PARNET** (2 disks) Link two Amigas
- U429 **AMOS PRO UPDATE** Latest
- U430 **XPK COMPRESSION UTILS**
- U431 **WB2 UTILS**
- U433 **AMOS PRINTER ROUTINE** For Amos progs
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- U442 **FRED FISH CATALOGUE** 1-890
- U443 **PP SHOW v 3.4a**
- U444 **HYPER** use with Amigaguide
- U445 **AMIGAGUIDE (2 disks)** Hypertext utility
- U446 **AII v1.35** for archivers
- U447 **ADOC v3.01** help utility
- U448 **DISKTEST v2.03** checks integrity
- U449 **SOFTPROJECT** write protection
- U450 **SUPERDARK v1.2** screen blanker
- U451 **APRF v1.4** print utility
- U452 **GUARC v1.1** for CLI based archivers
- U453 **LANDBUILDER v3.2** Fractal land gen.
- U454 **PC>AMIGA** file utility
- U455 **TRONICAD** electronic circuit design
- U456 **X-BENCH** (2 disks) replacement W.B.
- U457 **ROT-3D** drawing package
- U458 **SNOOPDOS** get progs working
- U459 **T.S. MORPH**
- U460 **AREXX GUIDE**
- U461 **DEANS CRUNCHERS**
- U462 **ASSASSINS FIX DISK 1**
- U463 **ASSASSINS FIX DISK 2**
- U464 **AF'S REPLACEMENT WB** (3 disks) not A1200
- U465 **T.A.C.K.** Anim. Const. Kit
- U466 **T.A.C.K.** Music Modules
- U467 **T.A.C.K.** Background Pics
- U468 **ZIPBENCH** (2 disks) not 1200
- U469 **SUPERVIEWER V2.4** Slideshow util.
- U470 **UDRAW**
- U471 **MINIMORPH**
- U472 **SCALE ICON**
- U473 **CATALOGUE COLLECTOR**
- U474 **SPICE 3** Circuit Analysis

BUSINESS

- BU86 **JOURNAL** Accounts, simple to use
- BU96 **AMIBASE V3.76** Database
- BU104 **BANK'N** Cheque account
- BU105 **AMICASH BANKIN** Accounts
- BU106 **D BASE & SPREADSHEET** Addresses
- BU108 **VISICALC SPREADSHEET** Like Lotus 123
- BU111 **ANALYTICALC** * (2) Spread-sheet, powerful
- BU112 **FLEXIBASE V2.0** D/Base
- BU124 **BUSINESS CARD MAKER**
- BU128 **SCALC & WORDWRIGHT** Spread/w. proc.
- BU129 **WORDWRIGHT & SPELL** W/proc and check
- BU131 **U-EDIT W/PROCESSOR**
- BU132 **TEXTPLUS W/PROCESSOR**
- BU133 **600 BUSINESS LETTERS** Just load 'em in
- BU135 **AMIGAFOX DTP V1.1** Puts pics with text
- BU136 **AMIGASPELL** Spellchecker
- BU137 **WORD FRENZY-QBASE & SPELL**
- BU138 **AMIGAFOX V1.0** W/Processer
- BU145 **TEXT ENGINE V4.1** W/Processor latest
- BU152 **AMIBASE PROF II V1.2** D/Base
- BU158 **MICROGNUEMACS** Text editor
- BU162 **A-Z SPELL** Spellchecker
- BU171 **ILLINOIS LABEL PRINTING**
- BU172 **INVOICE PRINTER**
- BU186 **CLERK V4.0** Accounts – latest
- BU204 **MAIL-O-DEX** Mail Database
- BU212 **LABEL DESIGNER**
- BU231 **SPELLCHECK V1.2**
- BU248 **CHECKBOOK ACCOUNTANT** Very good
- BU251 **BUDGET V1.3-4** Finances
- BU254 **SUPERSPELL** Global spell check
- BU301 **FORMS UNLIMITED** Loads
- BU304 **P SUITE V1.4**
- BU314 **P WRITER** Text editor
- BU324 **WORDPOWER** Thesaurus
- BU325 **EDWORD** W/Processor
- BU326 **ADDRESS BOOK**
- BU327 **BOILER PLATE** W/Processor & Bus. letters
- BU328 **LITTLE OFFICE** WP, S/S, D/B + Graphix
- BU329 **MORTGAGES ANALYSER**
- BU330 **PRINT A CARD** Design
- BU332 **AMIGA MAIL** Address lists
- BU334 **PC FORM LETTERS**
- BU335 **PAY ADVICE ANALYSER v3.0** P.A.Y.E., N.I. etc
- BU336 **MONEY PROG** * Good accounts
- BU337 **CHEQUE BOOK** Accounts prog
- BU339 **D LAB** Disk labeller
- BU340 **LOGINFO** Phone bills for modem
- BU341 **EASYCALC** New spreadsheet
- BU181 **B BASE II** Database
- BU319 **ORDER v1.7** Database
- BU342 **LS LABEL** Label print
- BU343 **DATABASE WIZARD**
- BU398 **ADDRESS PRINT v3.0**
- BU399 **TEXTPLUS v4.1** Hard Drive only
- BU400 **ENVPRINT** Address envelopes
- BU401 **P.E. PRINT UTILS** Labelling progs
- BU402 **TRUE ED** Excellent editor
- BU403 **FTX ACCOUNTS**
- BU404 **ACCOUNT MASTER 2.12**
- BU405 **TURBO TEXT v1.1** very impressive w processor
- BU406 **ADM v1.01** Flexible address d/base
- BU407 **A-BASE** Great database
- BU408 **GOLD ED** (2 disks) Fully functional - fantastic!
- BU409 **FH SPREAD** - New spreadsheet
- BU410 **BUDBASE v1.2** Easy to use d/base
- BU411 **EASYCALC PLUS** Good spreadsheet WB2+ only
- BU412 **AMIGABASE** Excellent database
- BU413 **BANK v1.0** Accounts programme
- BU414 **INVENTORY II** Stock control & wages
- BU415 **AMIGA DIARY v1.13**
- BU416 **PAYROL**
- BU417 **EASYPRINT** (1.3 only)
- BU418 **PERSONAL ADDRESS BOOK** (Password)
- BU419 **PERSONAL JOURNAL** (Secret Diary)
- BU420 **WOMBLE VOL 1** Database etc

HOBBIES

- H 88 **CROSSWORD DESIGNER**
- H148 **A-GENE** Family history
- H175 **GOLF RECORDER v 1.84**
- H202 **ROAD ROUTE USA**
- H214 **FOOTBALL LEAGUE EDITOR**
- H247 **CALORIE BASE** For recipies
- H250 **DARTS LEAGUE D/BASE**
- H298 **CULT TV VOL 1** TV series info
- H299 **WHOM 2** Data on TV progs.
- H302 **LAST WILL & TESTAMENT**
- H305 **ASTRO 22 v 3.5** Latest astrology
- H307 **FAMILY HISTORY D/BASE**
- H310 **TEN PIN BOWLING D/BASE**
- H333 **AMIGA PUNT** Horse racing
- H336 **PERM CHECK v1.0** Pools predicter
- H342 **STITCHERY** Cross stitch work
- H359 **RACE RATER** Horse predicter
- H360 **QUESTION ATORT** Quizmaker
- H361 **NEW BIORYTHMS** Excellent prog.
- H362 **WINE MAKERS D/BASE**
- H363 **CYCLING M** Useful
- H364 **DARTS MACHINE** Score recorder
- H365 **AMYGEN** Family history
- H366 **POOLS WIZARD** Demo
- H367 **MING SHU** Chinese Astrology
- H368 **ASTRONOMY 2** Data & graphics
- H369 **AMERICAN FOOTBALL** (2 Disks) Rules
- H370 **LANDSCAPE GARDENING**
- H371 **GENEOLOGIST** WB2 and above
- H372 **TOP OF THE LEAGUE** Football Manager
- H373 **COURSE FORM** Horse racing
- H374 **FORECASTER** Horse race predictor
- H375 **STARVIEW** Astronomers
- H376 **CODE MUNGUS v5.7** Highway Code
- H377 **FOOTBALL FORECAST DEMO**
- H378 **BON APPETITE** Recipe database
- H379 **POOLS TOOLS 2** Pools progs.
- H380 **SEE THE AURA** (2 disks) human aura
- H381 **PHOTOGRAPHY** About the Dark Room
- H382 **DSOLVE CROSSWORD** Solve them
- H383 **PROFESSIONAL BINGO**
- H384 **WORD UTILITIES** Word puzzle solver
- H385 **KITE SIMULATOR** Fly your kite!
- H386 **POOLS WIZARD JUNIOR V1.0**
- H387 **SPIDERSOFT UTILS** Garden Designer
- H388 **GENIE** Family History
- H389 **STOCK ANALYST** Stocks & Shares
- H390 **WHOM 3** Part 2
- H391 **WHOM 3** Part 3
- H392 **TAROT** (2 disks)
- H393 **KNIT** Create patterns
- H394 **GOLF GURU V1.2** Keep golf scores
- H395 **FOOTY V1.4** Football League Editor
- H396 **DIVIDEND WINNER** Football

COMMUNICATIONS

- C 25 **COMMSOFT** Needs C26
- C 26 **COMMSPANION** Needs C25
- C 62 **AZ-COMM** Modem programme
- C222 **JR COMM v1.02** For modems
- C249 **TERM II v1.1** Comms prog WB2/3
- C303 **OPTI COMMS** Inc N Comm 2
- C347 **SATELLITE TRACKER**
- C357 to C382 **AMATEUR RADIO 1 - 26** (26 disks) send for details
- C383 **N COMM v3.0** Latest
- C384 **BBBBS** (3 disks) Bulletin board system
- C385 **TERM v3.4** (2 disks) WB2/3
- C386 **SPOT** Fidonett util
- C387 **TERMINUS** JR Comm 2

VIRUS HELP

- VH 44 **MASTER VIRUS KILLERS v2.0**
- VH 93 **WARRIORS VIRUS KILLERS**
- VH218 **NEW SUPERKILLERS v2.5**
- VH235 **BOOTX V4.45** WB 1.3/2
- VH312 **LINK VIRUS DETECTOR**
- VH409 **EXTERMIN 8**
- VH411 **VIRUS Z v3.07**
- VH413 **ANTICICLOVIR v2** Link virus detector
- VH414 **VIRUS CHECKER v6.33**
- VH415 **SUPER VIRUS KILL** WB 2+
- VH416 **TRONIC VIRUS KILLERS**
- VH417 **VIRUS Z II** WB 2+

EDUCATION

- E6 **LEARN & PLAY** (2 disks) Early learning
- E9 **MATHS DRILL**
- E10 **TYPING TUTOR**
- E11 **KIDSPAINT**
- E13 **STORYLAND 2** Save toyland
- E14 **TC ASTRONOMY** Book on a disk
- E15 **TC DINOSAURS** Learn about them
- E17 **SPELLCHECK** Learn foreign words
- E18 **TRANSLATOR** Spanish, French, Italian
- E19 **COLOUR IT V1.3** For younger kids
- E23 **COLOUR THE ALPHABET** Very good
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- E25 **ALGEBRA**
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- E27 **AMOSAGRAM** Playing with words
- E28 **BLACKBOARD MATHS**
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- E259 **PLOTTER v3.30** 2 dim math plots
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- E379 **KIDS DTP 2**
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- EM141 **IBeM** PC emulator
- EM143 **ST EMULATOR** 1.3 only
- EM149 **C64 GAMES DISK 1** use with
- EM150 **C64 GAMES DISK 2** emulator
- EM215 **A64 EMULATOR v2.0*** (2 disks) Latest C64 emulator
- EM306 **MS-DOS PROGS FOR PC TASK** (6 Disks)
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- EM410 **DEGRADER** Degrades to 1.3
- EM412 **FAKEMEM** Degrades to 1.3/512k
- EM413 **KILL AGA v2** Turn off AGA chipset
- EM414 **KICKSTART 3 EMULATOR** Upgrades WB2
- EM415 **PC TASK v2.03**
- EM416 **SPECCY EMULATOR v1.7** All Amigas
- EM417 **S KICK** Switch WB 3.0 to 1.3
- EM418 **Z KICK** A600 emulator
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- HD397 **HD CLICK v2.53**
- HD398 **MR BACKUP v1.148**
- HD399 **BACKUP**
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- PD281 **PRINT STUDIO** 41 drivers – good
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- PD328 **PRINTER DRIVERS UPDATE 3**
- PD335 **PRINTER DRIVERS** Canon BJ10e
- PD358 **CANON PRINTER DRIVER** BJ130 etc
- PD407 **PRINTER DRIVERS** Star/Epson/Pan/HP
- PD408 **HP550C Printer Driver**
- PD409 **HP PRINTER DRIVERS**
- PD410 **PROF PRINTER DRIVERS**
- PD411 **STAR PRINTER DRIVERS**
- PD412 **CANON STUDIO**
- PD413 **STAR STUDIO**

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- CP234 **FLASH COPY** Multi-tasking
- CP257 **FREE COPY v1.8** Removes protection
- CP313 **NIB v2.0** Removes protection (1.3 only)
- CP340 **ASI CRUNCH 'N' COPY 2** Collection
- CP341 **COOL COPIER v2.0** Fast & safe
- CP348 **ASI DISK COPIERS** Collection
- CP349 **LOCK PIC 2** Removes protection
- CP350 **D COPY v3.1**
- CP351 **MAVERICK COPIER** Rem. protection
- CP352 **SAFE II** Powerful copier
- CP353 **MEGA MONITOR** Action replay type
- CP354 **THE DISK UTIL** WB2+
- CP355 **SUPER FORMATTER v1.0d**
- CP356 **SUPERDUPER v2.02**
- CP357 **BAD FORMAT** Run Bad disks
- CP358 **COPIERS UNLIMITED**
- CP360 **DISKMATE** V.Good (WB2.04+)

PROGRAMMING

- PR 47 **C LANGUAGE MANUAL** (3 Disks)
- PR 49 **C LANGUAGE COMPILER**
- PR 72 **PASCAL LANG PROG**
- PR 94 **POWER LOGO v1.0** Lisp & Logo
- PR110 **PDC** (3 Disks) Programmers aid
- PR118 **BC-FORTRAN**
- PR106 **AMIGA CODERS CLUB** (6 Disks)
- PR225 **CURSOR COMPILER** Basic language
- PR239 **DME V1.45** Programmers Text Editor
- PR243 **DICE v2.06.0** (2 Disks) C Environment
- PR244 **PCQ v1.2a** (3 Disks) Pascal compiler
- PR326 **SOZOBAN C DISK** AZ Text link compiler
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- PR363 **AZAPP v2.04** binary editor
- PR364 **INSTALLER** for software developers
- PR365 **MPE v1.6** M2Amiga companion
- PR366 **MODULA-2** language
- PR367 **GNU++C COMPILER** (3 Disks)
- PR368 **PCQ SHELL** Pascal Compiler
- PR369 **'C' LANGUAGE MANUAL v2.0** (4 disks)
- PR370 **C++ 2LATEX** Make Latex files from C++ or C

GRAPHICS

- GU163 **3D FONTS** (3 Disks)
- GU168 **CARTOON BRUSHES**
- GU219 **TV GRAPHICS** (2 Disks)
- GU226 **GRAPHIC UTILS**
- GU227 **REAL 3D FONTS**
- GU228 **REALTIMES** (2 Disks) 3D Pics
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- GU245 **BOOTPIC V1.2**
- GU246 **CLIP-ART PORTFOLIO** (15 disks)
- GU261 **LARGE FONTS DISK**
- GU265 **SCANNES CLIP-ART** (3 Disks)
- GU266 **PG CLIP-ART**
- GU268 **EXILE FONTS**
- GU269 **DYNAMITE FONTS**
- GU270 **FONTS & SURFACES**
- GU272 **CLIP-ART COLL** (8 Disks)
- GU273 **CLIP-ART VOL 1** (7 Disks)
- GU274 **FONTLIB**
- GU276 **SOMETHING FOR NOTHING 1**
- GU277 **SOMETHING FOR NOTHING 2**
- GU279 **DYNAMITE FONTS 2**
- GU280 **HACK FONTS 1** (2 Disks)
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- GU284 **COSMOPOLITAN FONTS 2**
- GU285 **COSMOPOLITAN FONTS 3**
- GU286 **COSMOPOLITAN FONTS 4**
- GU289 **SONIC DEV CONVERTERS PACK**
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- GU309 **RAY DANCE** (2 Disks)
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- GU311 **DISK MANAGER + FONTS** (Plus only)
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- GU313 **MOVIE MAKER**
- GU314 **ANIMATIONS BRIDGE V1.0**
- GU315 **PLOTTING & GRAPHICS**
- GU316 **DOCK ICONS**
- GU317 **ASSASSINS MULTI-VISION V1.0**
- GU318 **THE SNOWMAN CLIP-ART**
- GU319 **PAGESTREAM 2.1 FONTS** (5 disks)
- GU320 **WALT DISNEY CLIP-ART**
- GU321 **MAGNETIC PAGES V1.3**
- GU322 **COMPUTEREYES FONTS PACK 1**
- GU323 **COMPUTEREYES FONTS PACK 2**
- GU324 **COLOURED ICONS**
- GU325 **GRAPHICS RIPPER**
- GU362 **DIRECT ACTION** Anim creator
- GU363 **M.A.K.** Mandelbrot adv kit
- GU402 **FREE PAINT** Copy of DPaint
- GU403 **VIEWTEC v1.02** AGA graphics display
- GU404 **FONTS DISK 1** Large & small
- GU405 **DIGI FONTS** Good variety
- GU406 **COLOUR FONTS 1** Modern, Olde, Pica
- GU407 **COLOUR FONTS 2** Marble, Rocks, Grids
- GU408 **COLOUR FONTS 3** Dimond, Eye, Sun
- GU409 **COLOUR FONTS 4** Digi/Font brushes
- GU410 **COLOUR FONTS 5** Cinnam 8, 16 etc
- GU411 **COLOUR CLIP-ART** Hi/Med/Low for DTP
- GU412 **COLOUR CLIP-ART** Animals
- GU413 **CLIP-ART** Animals B&W IFF
- GU414 **CONTACH CLIPART 1** Cartoon, Zodiac
- GU415 **CONTACH CLIPART 2** Buildings, Xmas
- GU416 **CONTACH CLIPART 3** Signs, Teddys, Work
- GU417 **GRAPHICS TOOLS 2**
- GU418 **RAYSHADE** (3 Disks)
- GU419 **PRO PAGE TEMPLATES**
- GU420 **PRO PAGE HELP**
- GU421 **DPAINT TUTOR** Learn to use it
- GU422 **SPECTRA PAINT**
- GU423 **THE DESIGNER** Arcade backgrounds
- GU424 **RJ UTILS** Perfect Paint, Image W/Shop
- GU425 **FONT FARM 3**
- GU426 **FONT FARM 1**
- GU427 **FONT FARM 2**
- GU428 **VIEW 3.2** Anim Player
- GU429 **HAM LAB PRO v2.06** Picture Converter
- GU430 **ICONS GALORE**
- GU431 **STILL STORE**
- GU460 **QUICK GRAB** AGA
- GU462 **POST** Postscript interpreter
- GU463 **POST SCRIPT FONTS 1**
- GU464 **POST SCRIPT FONTS 2**
- GU465 **POST SCRIPT FONTS 3**
- GU466 **GELIGNITE FONTS 4**
- GU467 **ULTRAPAINT**
- GU468 **ARTISTIKS** Art package
- GU469 **BLUE ROSE FONTS 1**
- GU470 **BLUE ROSE FONTS 2**

SUPERB QUALITY CLIPART

- GU326 **ART 1** (2 Disks) Weddings
- GU327 **ART 2** (2 Disks) Houses
- GU328 **ART 3** (3 Disks) Religious
- GU329 **ART 4** WWII Aircraft
- GU330 **ART 5** (2 Disks) Men
- GU331 **ART 6** (2 Disks) Women
- GU332 **ART 7** (2 Disks) Kids
- GU333 **ART 8** Business
- GU334 **ART 9** Office
- GU335 **ART 10** Students
- GU336 **ART 11** Sale
- GU337 **ART 12** (3 Disks) Christmas
- GU338 **ART 13** (3 Disks) Punch
- GU339 **ART 14** Animals
- GU340 **ART 15** Cats
- GU341 **ART 16** Silhouettes
- GU342 **ART 17** (2 Disks) Schools
- GU343 **ART 18** Babies
- GU344 **ART 19** (2 Disks) Sport
- GU345 **ART 20** Olympic
- GU346 **ART 21** (2 Disks) Medical
- GU347 **ART 22** Sea Life
- GU348 **ART 23** Decorative Months
- GU349 **ART 24** Whacky (funny)
- GU350 **ART 25** Holidays
- GU351 **ART 26** (2 Disks) Old banners
- GU352 **ART 27** Art Nouveau flowers
- GU353 **ART 28** Butterflies
- GU354 **ART 29** (2 Disks) Food & kitchen
- GU355 **ART 30** Colouring book (DPaint)
- GU356 **ART 31** Borders (DTP) (2 Disks)
- GU357 **ART 32** (2 Disks) MAC clipart
- GU358 **ART 33** Hornback (scenic)
- GU359 **ART 34** (2 Disks) Teddy Bears
- GU360 **ART 35** (2 Disks) Vanity Fair (fashion)
- GU361 **ART 36** Halloween (weird)
- GU364 **ART 37** Showtime (dancing etc)
- GU365 **ART 38** Vegetarian
- GU366 **ART 39** Floral (detailed)
- GU367 **ART 40** Myths & Zodiac
- GU432 **ART 51** Botanical art
- GU433 **ART 52** Family scenes (2 Disks)
- GU434 **ART 53** Golf Humour (2 Disks)
- GU435 **ART 54** Space & transport
- GU436 **ART 55** Soft scene 2 – Rural pics
- GU437 **ART 56** Sports 3
- GU438 **ART 57** Navy
- GU439 **ART 58** Travel (2 Disks)
- GU440 **ART 59** Alphabet (2 Disks)
- GU441 **ART 60** Accents & Flashes – stars etc.
- GU442 **ART 61** Fish & aquatic pics
- GU443 **ART 62** Softscene 3
- GU444 **ART 63** Restaurant (3 disks)
- GU445 **ART 64** Mammals
- GU446 **ART 65** Anim & bird
- GU447 **ART 66** Mossburn animals
- GU448 **ART 67** Burchfield kids
- GU449 **ART 68** Beast & Myth (3 Disks)
- GU450 **ART 69** Transport (3 Disks)
- GU451 **ART 70** Trucks & trains
- GU452 **ART 71** Astrology (2 Disks)
- GU453 **ART 72** Aircraft (3 Disks)
- GU454 **ART 73** Birds – songbirds etc.
- GU455 **ART 74** Dogs
- GU456 **ART 75** Houses, castles & buildings
- GU457 **ART 76** Sports – Mac
- GU458 **ART 77** Horticulture (5 Disks)
- GU459 **ART 78** Military (10 Disks)

Coloured clipart also in stock – send for details

MUSIC UTILITIES

- MU2 **MODULES ONE**
- MU3 **MODULES TWO**
- MU4 **MODULES THREE**
- MU5 **MODULES FOUR**
- MU6 **MODULES FIVE**
- MU7 **MODULES SIX**
- MU10 - MU47 **ST SAMPLES & INSTRUMENTS** (38 Disks) or buy singly
- MU48 **8 CHANNEL SOUND TRACKER**
- MU49 **STAR TREKKER 1.3**
- MU51 **MODULE/SONGS 2**
- MU77 **MED 3.2** Music editor
- MU193 **OCTAMED v1.0b FF579** Music editor
- MU256 **MULTI-PLAYER V1.11A** Music
- MU317 **DENNIS SAMPLES DISK 2** Madonna etc
- MU318 **DENNIS SAMPLES DISK 3** Baby cough etc
- MU319 **DENNIS SAMPLES DISK 4** Telephone etc
- MU321 **DENNIS SAMPLES DISK 6** Star Trek etc
- MU322 **DENNIS SAMPLES DISK 7** Heavy monster etc
- MU323 **ASSASSINS AUDIO MAGIC VOL 1.1** Lots
- MU324 **ASSASSINS AUDIO MAGIC VOL 2** Trackers
- MU325 **SOUND APPLICATIONS A & B** (2 Disks)
- MU326 **MEGA MON v 3.20**
- MU327 **SAMPLE MAKER**
- MU328 **CASIO CZ-101**
- MU329 **DX 100**
- MU330 **PENDLE EUROPA**
- MU331 **AUDIO ANIMATION STUDIO**
- MU332 **INSTRUMENTS & SAMPLES**
- MU333 **PROTRACKER v2.2**
- MU334 **NOISETRACKER v2.0**
- MU335 **SOUND TRACKER v4.0**
- MU336 **PROTRACKER v2.3** Latest
- MU337 **ASI AUDIO MAGIC Vol 3** Trackers
- MU338 **ASI AUDIO MAGIC Vol 4** Inc Pro Tracker v3
- MU339 **OCTAMED V2.0** 8 channel MED sequencer
- MU340 **CDTV PLAYER** Simplifies audio CD's
- MU341 **SUPERSOUND v2.1** Sound sampling
- MU342 **SOUND** Sample player
- MU343 **DESKTOP GUIDE TO ELECTRONIC MUSIC** (3 disks)
- MU344 **TAB MASTER** Music to guitar translator
- MU345 **POWERCUTS** Good sound effect samples
- MU346 **BEATS** (5 disks) Drum Samples
- MU347 **VOCALS** (5 disks) Super Samples
- MU348 **DRUM KIT SAMPLES** (3 disks) High quality
- MU349 **KORG SAMPLES** Keyboard Sounds (3 disks)
- MU350 **MUSIC MODULES** (5 disks) Large modules
- MU351 **PURE SAMPLES** (3 disks)
- MU352 **METAL MODULES** (5 disks) Heavy Metal
- MU353 **CHIPMANS SAMPLE DISK** 1-70 Samples
- MU354 **SAMPLE FACTORY** Sound effects
- MU355 **DELITRACKER** Sound player
- MU356 **POWER PLAYER v3.9** module player
- MU357 **IFF BREAKBEATS 1**
- MU358 **TECHNO MODULES 1-5** (5 disks)
- MU359 **OCTAROCK 30** Rock + Grafix
- MU360 **OCTASTUFF** For Octamed v3 &4
- MU361 **GUITAR TUNER**

VIDEO WORK

- V 99 **CATALOGUE WORKSHOP 1**
- V100 **CATALOGUE WORKSHOP 2**
- V179 **VIDEO APPLICATION UTILS**
- V180 **VIDI FONTS 1**
- V220 **VIDEO GRAPHICS** (4 Disks)
- V236 **CHEMNIMATE** Reaction anims
- V345 **VIDEO WIPES**
- V401 **INSCRIPT** Video titler
- V402 **TELE TITLER 2** Hi-res – use with V408
- V403 **VIDEO EDITORS KIT**
- V404 **CAPTIONATOR** Superb video titler
- V405 **HARLEQUIN VIDEO ART 1**
- V406 **HARLEQUIN VIDEO FONTS 1**
- V407 **HARLEQUIN VIDEO FONTS 2**
- V408 **TELESCROLL 1** Video titler
- V409 **TELETITLER 3** Lo-res – use with V408
- V410 **DESKTOP VIDEO** Add scrolling titles

A1200

- WS1-5 **WEIRD SCIENCE** S/Show & music (5 disks)
- SH1-6 **SUPER HAM PICS** (6 disks) Brill!
- AU12 **JPEG AGA IMAGES** (9 disks) Superb!
- AU13 **BAD BOYZ AGA SLIDES** (10 disks) Fab!
- AU14 **SLEEPLESS NIGHTS** – 3 utilities
- AU15 **A1200 UTILITIES** – Gif & PCX datatypes etc
- AU16 **A1200 WB HACKS**
- AU17 **ANDY'S WB3 UTILS** Brill! Fakemem, AGAtest etc
- AU18 **24 BIT UTILS** – 3 conversions progs
- AU19 **WINBLEND** Fractal generator
- AU20 **JPEG UTILS** Rend 24 convertor pics
- AU21 **HD PREP** preps hard drive
- AU22 **HDMEM** needs MMU
- AU23 **RD PREP** preps rigid disk
- AU24 **HD INSTALLER**
- AU25 **MAGIC WORKBENCH** Superb icons (HD only)
- AU26 **AGA UTILITIES 2** 256 colour icon ed etc
- AU27 **AGA UTILITIES 3** Kill aga etc
- AU28 **AGA UTILITIES 4** Bblank, checkaga etc
- AU29 **AGA UTILITIES 5** Degrader, AMIGAtodouble etc
- AU30 **AGA UTILITIES 6** A4091 patch, Ham8, newpop
- AU31 **A1200 VIRUS KILLERS**
- AU32 **NEW WB3 SUPER KILLERS**
- AU33 **A1200 INTROS**
- AU34 **HOY AGA DEMO 1**
- AU35 **HOY AGA DEMO 2**
- AU36 **NIGHTBREED** (2 disks) AGA slides
- AU37 **FERRARI AGA SLIDES**
- AU38 **CYNOSTIC SLIDES**
- AU39 **KEITH RHODES PICS** Fantasy
- AU40 **RETINA BURN AGA** Brill demo
- AU41 **PANTARHEI AGA** Great new demo
- AU43 **MSM v1.8** Martins System monitor for programmers
- AU44 **MAIN ACTOR** Modular anim. package
- AU45 **AGA BLANKER** – 14 different ones
- AU46 **STARTREK PICS 1-5** (5 disks)
- AU47 **MAGIC FACTORY SLIDES 1** – Brill Sci-Fi
- AU48 **MAGIC FACTORY SLIDES 2** – More Sci-Fi
- AU49 **PYGMY PROJECTS EXTENSION DEMO** – Rave
- AU50 **POINT OF SALE DEMO** – Superb
- AU51 **BLACKBOARD** – Image Processor
- AU53 **WB3 BACKGROUNDS**
- AU54 **KILL AGA v2** Turn off AGA chipset
- AU55 **KLONDIKE AGA** (3 disks)
- AU56 **MOTOROLA INVADERS 2** (2 disks)
- AU57 **UCHESS** (4Mb RAM req'd)
- AU58 **AGA TETRIS**
- AU59 **STEVE PACKER** (10 disks) Animations
- AU60 **NIGHTBREED** AGA Frac Flight
- AU61 **MEGABALL 3** AGA

Most titles in other categories run on A1200 – Some may need EM400

GAMES

- G4 **MEGABALL** Breakout – very addictive
- G5 **STAR TREK I** (2 disks) Space (Not A1200)
- G13 **CASTLE OF DOOM** Adventure
- G14 **HOLY GRAIL** Text only adventure
- G15 **GOLDEN FLEECE** Text only adventure
- G22 **CARD GAMES** Harp, Plat, Queens etc
- G23 **SUPER TWINTRIS** Shape dropping excellent
- G29 **GAMES DISK 7** Backgammon etc
- G33 **WIZZYS QUEST** * Arcade puzzle, good graphix
- G34 **RETURN TO EARTH** Elite type
- G35 **LLAMATRON** 512K & 1Mb Shoot 'em up
- G39 **BUG BASH** Shoot 'em up
- G41 **ESCAPE FROM JOVI** Space Arcade
- G43 **DOWNHILL CHALLENGE** Tactics, ski to win
- G44 **BATTLEFORCE** Fantasy roll playing game
- G45 **DRAGON CAVE** Dungeon Master type
- G49 **MECHFIGHT RPG** Roll playing game
- G52 **GREYSLAYER** Arcade adventure
- G53 **SCUM EATERS** Shoot 'em up
- G54 **STAR TREK 2** (3 disks/Not 1200
- G55 **POM POM GUNNER** * Arcade shoot 'em up
- G56 **FRUIT MACHINE** * Excellent
- G57 **MECHFORCE** (2 Disks) RPG
- G58 **SEA LANCE** * Submarine Simulation
- G59 **KLONDIKE** Cards
- G62 **AIR ACE II** World War 2 S.E.U.
- G65 **MERV THE MERCILESS** Platform
- G67 **TREASURE HUNT** (6-8 yrs)
- G68 **CHEAT LIST GAMES V1.0**
- G69 **WHACKO JNR IN WONDERLAND** Good for kids
- G70 **PARACHUTE JOUST** Good graphics
- G71 **CRYSTAL CAVERNS** Arcade adv
- G72 **TREK-73** Space text adv
- G73 **ZEUS – THE GAME** Puzz tiles
- G74 **DUNGEON DELVER** (2 Disks) Mazes
- G75 **PICK UP A PUZZLE** * (2 Disks) Jigsaws
- G76 **CHAINSAW DEATH** * Futuristic maze type
- G77 **CAN YOU PICTURE IT** * (2 Disks) Jigsaw
- G78 **CROSSFIRE** * Excellent for kids
- G79 **BALLOONACY** * Bomb the skyscrapers
- G81 **DEMOLISION MISSION** * Bomber
- G82 **BLACKJACK** Card game
- G84 **PETER'S QUEST** Arcade –Rescue the Maiden
- G88 **AMIGAMAN GAMES** 10 games
- G90 **SHAPES** Very playable for kids
- G91 **GO LOOLY** S.E.U. Good graphix
- G92 **STAR TREK THE NEXT GENERATION** (Not A1200)
- G93 **BLOCKIT** Good graphix – Ace
- G94 **HACK** Text adv
- G95 **DRAGON TILES** Great tiles game
- G96 **BOARD GAMES**
- G97 **ATIK ATAK** C64 game
- G99 **BART SIMPSON** Scrolling S.E.U.
- G124 **PIPE RIDER** Space Invader S.E.U
- G125 **RAMIFY** Pairing
- G126 **RUSH HOUR** Frogger – Get across the road
- G127 **TOMTESPELET** Speed ball type
- G129 **WET BEAVER GAMES** Pong
- G130 **WIZARD WORLD** S.E.U. Platform
- G131 **WORLD OF FOOLS** Shoot em up
- G133 **CARD SHARP** 5 card games
- G134 **TOTAL WAR** Risk type
- G135 **AIRMANIA** Platform
- G136 **SKYFLYER** WWII S.E.U.
- G137 **PUGGLES** Q bert brill
- G138 **SQUATS REVENGE** Wolf clone
- G139 **PAIR IT** Shapes
- G140 **GAMES COMPILATION** I 6 games
- G141 **ATLANTIS** I Strategy
- G142 **NAPOLEONIC WAR SIMULATION** Strategy
- G143 **MISSION RAID PART II** S.E.U.
- G144 **SNAKES & LADDERS** Good
- G145 **GAMES GALORE VOL 7** For the young
- G146 **AIR WARRIOR** Flight simulation
- G151 **E-TYPE** Arcade S.E.U.
- G152 **DUNGEONS OF NADROJ** Hacktype
- G153 **QUICK & SILVER** Platform. Excellent
- G154 **MASTER OF THE TOWN** Shoot the sign posts
- G156 **ETHOS** Text adv + pics
- G157 **BATTLE CARS** 3D cars S.E.U.
- G158 **CHALLENGER** Quiz - 5 player
- G182 **CATACOMB** Graphic adv – very well done
- G183 **KINGDOM AT WAR** War games
- G184 **SMASH TV RIPOFF** S.E.U. Futuristic
- G185 **DOODY** Mario type platform
- G186 **PICK OUT** Pair it. V. good
- G187 **NU-SHOOT EM UP** Space
- G189 **STRIKE BALL** Baseball. Brill!
- G190 **PARAGON** Marble Slide
- G192 **CRAZY SUE** Platform. 1st rate
- G193 **HENRY IN PANIC** Manic Miner type
- G194 **CONCENTRATION V3.3** Pair it type
- G195 **DESTINATION MOONBASE** Thrust
- G196 **ESCAPE FROM JOVI III** Caves
- G197 **NO MANS LAND** War S.E.U.
- G198 **DOMINOES** V. Good
- G199 **RAPHAELS REVENGE** Turtle S.E.U.
- G200 **MIDNIGHT THIEF GAME** Adv
- G201 **LAMER GAME** Wolftype shoot the beasties
- G204 **GRUB GRABBER II** Help Elvin! Avoid gremlin
- G205 **SWORD OF WORLOCK** 3 disk Adv.
- G206 **A NIGHT AT THE TOP** Terrorist adv
- G208 **QUADRIX** Puzz. Excellent
- G209 **YUM YUM** * Pacman
- G210 **REVENGE MUTANT CAMELS** S.E.U.
- G211 **BATTLEMENTS** Hunchback platform
- G212 **LEMMINGOIDS** Blast them!
- G218 **KARATE WORM** Platform-cute
- G219 **SNAKE IN THE GRASS** Platform – neat
- G221 **WIZARDS DOMAIN** Graphic adv
- G222 **PIXIE KINGDOM** (2 disks)
- G223 **ARCADIA** Breakout – very popular
- G224 **PORK A PORK** Stop the foxes
- G225 **MR BRICK** – Mario type
- G226 **RAID III** S.E.U. – wicked
- G227 **SERENE III**
- G228 **WOTSITSNAME** Quiz
- G229 **TETREN** – tetris
- G230 **NUMPTY & THE ALIEN INVADERS**
- G232 **LOTHIAN** Graphic adv
- G233 **OMEGA RACE** S.E.U. Great
- G234 **MENTAL IMAGES DISK 2** 3 games
- G262 **MR & MRS** Young platform – very good
- G263 **TANX** Great 98%
- G264 **DEFENDA** Arcade 96% Brilliant conversion
- G265 **GRAND PRIX SIMULATOR** Mega
- G266 **NUMBER FUMBLER** Number puzzle
- G267 **LEMMINGOIDS** Blast away
- G268 **GROWTH**
- G270 **PROJECT 1**
- G271 **LAZER ZONE**
- G272 **LEMMINGS PACK**
- G273 **THE MAZE GAME**
- G275 **APIDYA**
- G276 **SHOOT OUT**
- G277 **SUPER SKODA CHALLENGE**
- G278 **COMPUTER CONFLICT 2**
- G279 **ANTEP & SLOT CARS GAME** RPG
- G280 **TRICKY & THE TURN GAME**
- G283 **CARD GAMES 2**
- G285 **MIND GAMES 21**
- G286 **HYPER TEXT CHEATS**
- G287 **TECHNOBAN** Puzzle game
- G289 **THE BEAST** Mission to kill
- G290 **NADILOT RUN** Cat & dog chase
- G291 **OUCH** Clobber those moles
- G292 **ABSOLUTE ADV VOL ONE**
- G293 **CHAOS STRIKES BACK** Maps etc
- G294 **GAME TAMER v4.59** Latest
- G302 **AMOS CRICKET** Good cricket game
- G303 **ARAZNAX** 40 levels
- G304 **HELL ZONE** Elite
- G305 **FATAL MISSION** Good shoot 'em up
- G306 **GHOSTSHIP**
- G307 **CROSSMAZE/CRYPTO KING** Words
- G308 **INTERLOCK (AMOS)** 25 levels
- G309 **TANK ATTACK & MOUTHMAN**
- G311 **THRALLBOUND** Viking Adv Text
- G312 **BOUNCE AND BLAST** Platform
- G313 **SOCCER CARDS** Run the club
- G314 **CYBERNETIX** Fast action
- G315 **STAR MIX 2** 3 games
- G316 **FLAG CATCHER** Squares puzz
- G317 **OMEGA** Adv Moria type
- G318 **TOP SECRET** Excellent graphics platform
- G319 **MADONNA** Jigsaw
- G320 **ROBOCOP GOES TO IRAQ** seu
- G321 **BACK TO THE FUTURE III** Funny
- G322 **45 CHEATS** Codes etc
- G323 **TOMCAT** F15 shoot 'em up
- G324 **SUPER QUIZ**
- G325 **POWER PONG** Boing
- G326 **MAHJONG** Tiles
- G327 **NESTER** Cards
- G328 **STARFLEET** Shoot 'em up
- G329 **EXCALIBER** Shoot 'em up
- G330 **IMPERIUM ROMANIUM** Battle
- G331 **SQUAMBLE** Very Spacey!!
- G332 **JETMAN** Good shoot em up
- G333 **MECHFORCE v 3.71** Latest update
- G334 **PROPERTY MARKET GAME** Strategy
- G335 **ROLL ON & LAMER** Pushing
- G336 **HACKLITE v 1.0** Moria & Hack
- G338 **DIE FILTH** (2 disks) Brill like Swiv
- G339 **ULTIMATE HINT KIT v1.0**
- G340 **THE ACE CHEATS DISK 2** Lots
- G341 **BATTLE OF BRITAIN** Strategy
- G342 **THE SECRET OF MONKEY ISLAND** (Demo)
- G344 **ESCAPE II** Creating games
- G345 **QUIZMASTER v 1.0** Test your knowledge
- G346 **NEBULA** Shoot-em-up fast action!
- G347 **ESCAPE** into space!
- G348 **RUMMY** Excellent card game
- G349 **SPACE RESCUE** Super shoot 'em up
- G350 **INVADERS MARK II** Space invaders
- G371 **ERIC THE WARRIOR** Sim to Gauntlet
- G372 **KLAKTRIS** Tris type game
- G373 **CLI-TRIS** Latest TRIS
- G374 **DELUXE PACMAN**
- G375 **GALAGA 92** Shoot-em-up
- G376 **LIBERATOR GAME** Shoot-em-up
- G377 **ACK-ACK**
- G378 **CRAZY SUE 2** Latest platform
- G380 **LAST REFUGE** Invaders
- G381 **ZINGGER GAME** Karate game
- G385 **MORIA v5.4** Latest
- G386 **FRUIT MACHINE II** AMOS good
- G387 **OBLIVION** Defenda clone
- G388 **BOMB JACKY** Platform
- G390 **OTHELLO** Board game classic
- G391 **SOLITAIRE SAMPLER** Cards
- G392 **WILLY IN THE CASTLE** Excellent platform
- G393 **FRUIT SALAD** Platform. Reviewed in Format
- G394 **MARIO IN WONDERLAND** Brill clone – Mega!
- G396 **GIDDY** Great new platform game
- G398 **ATOMS** Weird!
- G399 **VECTA STORM** Brill new Tempest clone
- G400 **DIGITAL TETRIS**
- G402 **TETRIS PRO**
- G403 **SUPER PACMAN 92**
- G404 **BRIDGE**
- G405 **18th HOLE GOLF** (2 disks)
- G406 **SLIDE SQUARES** Puzzle
- G407 **THEY CAME FROM OUTER SPACE** Shoot em up
- G408 **SON OF BLAGGER** Excellent platform
- G409 **BRAINBOW** Addictive puzzle
- G410 **MYSTERY 2144 AD** Futuristic Murder adv.
- G411 **GUSH** Fab pipeline clone
- G412 **MEXICAN MASSACRE** Arcade action
- G413 **100 MEGA GAMES** (7 disks)
- G414 **BOX** Adventure game
- G415 **SLAMBALL** Future Management sim
- G416 **MAYHEM2** Multi player manic maze
- G417 **MUGSIE** Money making gangster adventure
- G418 **ROULETTE + PUNTO 2** Good game (not 1.3)
- G419 **BLITZ GAMES** Worm, buzzbar, speed etc
- G420 **SKID MARKS** Amazing driving game.
- G421 **ZOMBIE, APPOCOLIPS AND DEFENDER 2** Brill!
- G422 **BILLY BURGLAR** Just try to escape.
- G423 **OLYMPIAD** (Lemmings) (2 disks)
- G424 **CAVE FLIGHT** Dodge the obstacles.
- G425 **SERIOUS BACKGAMMON** Demo
- G426 **AIRPORT**
- G427 **EXIT-13** Puzzle
- G429 **BOW & ARROW**
- G430 **BLOAD RUNNER**
- G431 **POPEYE** Demo
- G432 **CASTLE MORRIS**
- G433 **THE RIGHT WAY** Lemmings
- G434 **PATIENCE** Cards
- G435 **PREMIERE PICKS** Football
- G436 **BOB N' FLOP**
- G437 **ROAD TO HELL** Racing brill!
- G438 **FIGHTING WARRIORS** Street Fighter 2 clone
- G439 **LEMMINGS 2** HD install
- G440 **NAPOLEONIC WARFARE** (2 Disks) Strategy
- G441 **TEXAS CHAINSAW MASSACRE**
- G443 **SCRABBLE**
- G444 **SMURF HUNT**
- G446 **THRUST DUEL** Gravity control
- G447 **EXORCISM** (2 Disks) Adv. & graphics
- G448 **CONQUEST & DOMINATION** Strategy war game
- G450 **DONKEY KONG** Platform
- G451 **OPERATION METEOR** 3D Graphics
- G452 **MR MEN OLYMPICS** (2 Disks)
- G453 **SUITCASE** (2 Disks) Adventure
- G454 **ESCAPE FROM DOOM** RPG type
- G455 **HIGH OCTANE** Overhead driving
- G456 **FATAL MISSION 2** Shoot em up
- G457 **KUNG FU CHARLIE** Platform beat em up
- G458 **GAMES GALORE 13**
- G459 **MENTAL IMAGES Vol 2**
- G460 **IRON CLADS** (2 disks) Naval battle Not 1200
- G461 **INTREPID** Rescue Dame form Evil
- G462 **QUIZ MASTER**
- G463 **QUIZ CHALLENGE**
- G464 **EYE OF BEHOLDER II** Cheats
- G465 **CHEATS** Many solutions
- G466 **PASSWORD PARADISE**
- G467 **MEGACHEATS v3.0**
- G468 **ELEVATION 2** Platform
- G469 **SCORCHED TANKS** Battle
- G470 **AMOS LOADSAMONEY** Fruit machine
- G471 **STAR TREKING TRIVIA** (2 disks)
- G472 **SUPER TOMCAT** Shoot 'em up
- G473 **LCD DREAMS** Hand held games
- G474 **SEAHORSE GAMES CHEATS**
- G475 **NOSTROMO CHEATS & SOLVES**
- G476 **ORC ATTACK**
- G477 **TANK HUNTER**
- G478 **RAID 4**
- G479 **MEGABALL 2**
- G480 **MEGABALL 3**

BOULDERDASH

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U219 - ERROR INFO - Gives you a list of all amiga error codes and their meanings.
U220 - PC TASK V2.02 - IBM PC emulater it allows you to run the majority of PC software with no additional hardware. Now supports VGA, EGA, CGA and MDA. (DV)
U222 - REPAIR-IT 3 - Contains a selection of disk and hard drive repairing utilities. Excellent for saving that vital file.
U224 - SPECTRUM EMULATER - This is the best and latest version of the most popular emulater for the amiga. There are 68020/030 versions for new AGA amigas.(2 disks)
U225 - STOCK ANALYST - This is a technical analysis and securities tracking program which calculates when to buy and sell shares.
U226 - ASTRONOMY V2.0 - A menu driven astronomy program that calculates information about the Sun, Moon and planets. Help disk.
U227 - MING SHU CHINESE ASTROLOGY - Will create horoscopes in seconds. The complete aid.
U228 - COLOURED ICONS - Transfer your disks into colourful, well presented works of art with this collection of icons.
U229 - KIDS PAINT - An art package simplified for the younger amiga owners.
U230 - STAR VIEW - This program is designed to show graphically the positions of the stars and planets from any part of the earth.
U231 - AQUARIUM - Turns your screen into an eye catching fish tank.
U232 - OCTAMED V2 - Latest PD version of the famous music package.
U233 - NUMPAD FOR A600 - A program that makes the A600 think its got a numeric keypad.
U234 - ADDRESS PRINT V3.1 - Very useful if you make regular postal correspondence.
U235 - IFF BOOT - Displays a picture whilst your hard disk boots up.
U236 - BETTER BENCH - New workbench replacement.
U237 - PAY ADVICE ANALYSER - A very useful program for keeping track of pay, tax and national insurance.
U238 - CANNON PRINT STUDIO - Got a Cannon printer? This disk is essential for brilliant results.
U239 - FANCY PRINTING DISK - Contains Banner, Graph Paper V1.2 and Disk Print V3.5
U240 - BBASEIII - An easy to use versatile, yet fully featured database. Greatly enhanced successor to bBaseII.
U241 - ADM V1.01 - Flexible address database with loads of great features.
U242 - LITTLE TRAVELLER V1.1 - This utility shows a world map and allows you to select any country for travel information. It then zooms in giving a close up map with more information.
U243 - BANNER MAKER - Create spectacular printed banners.
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U269 - TRONICAD V1.0 - A program that lets you design electronic circuit boards.
U270 - INSCRIPT V1.1 - Produce video titles including fully editable text entries.
U271 - UDRAW V1.0 - Provides a mechanism for the rapid drawing of bitmap graphics.
U272 - NCOMM V3.0 - A communications program. Has had some good reviews.
U274 - EDPLAYER - Gives all the features of a compact disc player.
U276 - SPACE PROJECTION - An aid to studying the Galaxy.
U277 - DIRECTORY UTILITIES - Highly recommended programs, designed to make CLI and Shell tasks virtually obsolete.
U279 - FIM V2.2 - An intro maker with IFF imports.
U280 - GRINDER - Complete graphic conversion package. Supports GIF, IPEG, PCX, TARGA, TIFF, HAM-E, and many others including several for the Atari ST.
U281 - IBeM EMULATOR V1.05 - Another PC emulator.
U282 - GENEALOGIST V3.04 - A database specialised for keeping track of a family tree.
U283 - TEXT ENGINE V4.1 - Sent direct from the author Nicholas Harvey, this excellent program has all known bugs fixed. This is by far the best public domain wordprocessor. Features include a 36,000 word spell checker.
U284 - VIDEO PRODUCTION - A disk that is packed full of video oriented programs.

AGA

A019 TO A023 - WEIRD SCIENCE - Excellent quality pictures. (5 disks - available separately)
A024 - FIT CHICKS - A collection of girly pictures for the A1200 only. (2 disks)
A025 - FREAKS BODY SHOP - A small selection of girly pictures.
A030 - FERRARI PICTURES - Pictures of a new model from the worlds most exotic car maker. Good 256 colour pictures.
A036 - NIGHTBREAD - Many pictures drawn in 256 colours. (2 disks)
G042 - AGA TETRIS - Controlled with the cursor keys, this excellent conversion of probably the most addictive game ever is now available with 256 colour graphics.
G082 - AGA CHESS - An excellent game but you will need 4mb of ram to get it to work!!!
U001 - ULTIMATE BACKUP DISK - This compilation includes DCopy V3.0 which is probably the only copier that works successfully on the A1200/A4000.
U123 - WORKBENCH HACKS - Many useless special effects for workbench V3.0
U118 - MORE WORKBENCH HACKS - Guess what?
U255 - WB V3.0 INSTALL - If you need to install your hard disk then you need this.
U256 - A1200 DEGRADERS - An essential purchase for AGA owners. Includes Fake Fast Mem, The Degrader, Diskstart, Kill AGA V2 and Helpful hints.
U257 - VIEWTEK V1.03 - An essential purchase allowing you to display AGA graphics.
U258 - HDMEM - This utility allows your AGA machine to use your hard disk as virtual memory. If you've got a 80mb hard disk then you can have 80mb ram. Requires FMU, MMU etc.
D181 - TEAM HOI PLANNER GROOVE - This was the worlds first ever AGA megademo.
D195 - PANTARHEI - A new AGA megademo. With amazing sound, graphics and colours.
D196 - RETINA BURN RAVE - A rave demo for AGA machine owners.
D197 - TEAM HOI 2 - Sequel to the first ever megademo.

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Speaking your language

Are you keen to start programming or to add to your existing coding skills? Paul Overaa guides you through the most popular programming packages for Basic, C/C++, and 680x0 Assembler

More and more users are becoming tempted to either learn their first programming language or develop their programming skills by learning another language. Now, all computer languages have their good and bad points but there's no doubt that, from an academic viewpoint, some are more intrinsically sound than others.

In fact you'll often hear people explaining why their favourite language is best. The truth of the matter is that things are not quite as simple as the good versus bad debaters would suggest and the languages which make the greatest impact on the academics certainly do not always turn out to be the most useful for doing real programming.

In practice this means that the question you should ask is not whether a language is good or bad but simply whether it will suit your purpose. You also need to choose a language that you are likely to be technically comfortable with, otherwise you may get disheartened with your lack of progress.

If, for example, you are new to programming and want to find some way of making a start then Basic is a very good choice; 68000 Assembly language is not.

If on the other hand you are an already competent coder who has moved to the Amiga from some other machine, you may be unworried by the prospect of learning C or Assembler and may even decide to dismiss the use of Basic altogether. One other practical point that everyone should consider before investing in a new language is whether the product is likely to be well supported or not. How can you tell? Well, one way is to read round-ups like this!

Beginners

Microprocessors, such as the 680x0 chips used in the Amiga, work by executing instructions built out of binary numbers. Although it is possible to program the 680x0 at this numerical machine code level most programmers use something called Assembly language that allows 680x0 instructions to be written in terms of meaningful names.

For instance, to move a number from a processor register to a particular memory location you would use a Move instruction. Assembler programming is still closely related to the underlying processor chip and for this reason it's called a low-level language.

On the Amiga this type of coding requires not only knowledge of the Motorola 680x0 chip but an in-depth understanding of the Amiga's operating system as well.

Make no mistake, it is a big challenge simply because there is so much to understand but, having said that, Assembler programming is addictive. Among the more dedicated Amiga programmers, 680x0 coding is very popular indeed!

ERROR PRONE

This type of programming is, however, time consuming and error prone, which is one of the reasons why a variety of so-called high-level, easier to use languages have been developed.

Basic is a high-level language that was originally designed specifically for teaching programming to beginners – the initials actually stand for Beginners All-purpose Symbolic Instruction Code. At one time almost every available version of Basic was different, so it got a bad name for portability.

Nowadays the situation is much better at least as far as the core Basic commands are concerned. In recent years the language itself has also improved immensely (it's become far more powerful) but it is still an easy language to learn and use, and that is its main claim to fame.

The C language gets a lot of coverage in the Amiga world – namely because it is the most important of all Amiga languages (much of the Amiga's system software was written in it).

C is a compiled high-level language that is flexible enough to allow programmers to do things that were previously only possible with Assembler.

This, plus some portability advantages, is the reason that C is popular as a systems programming language.

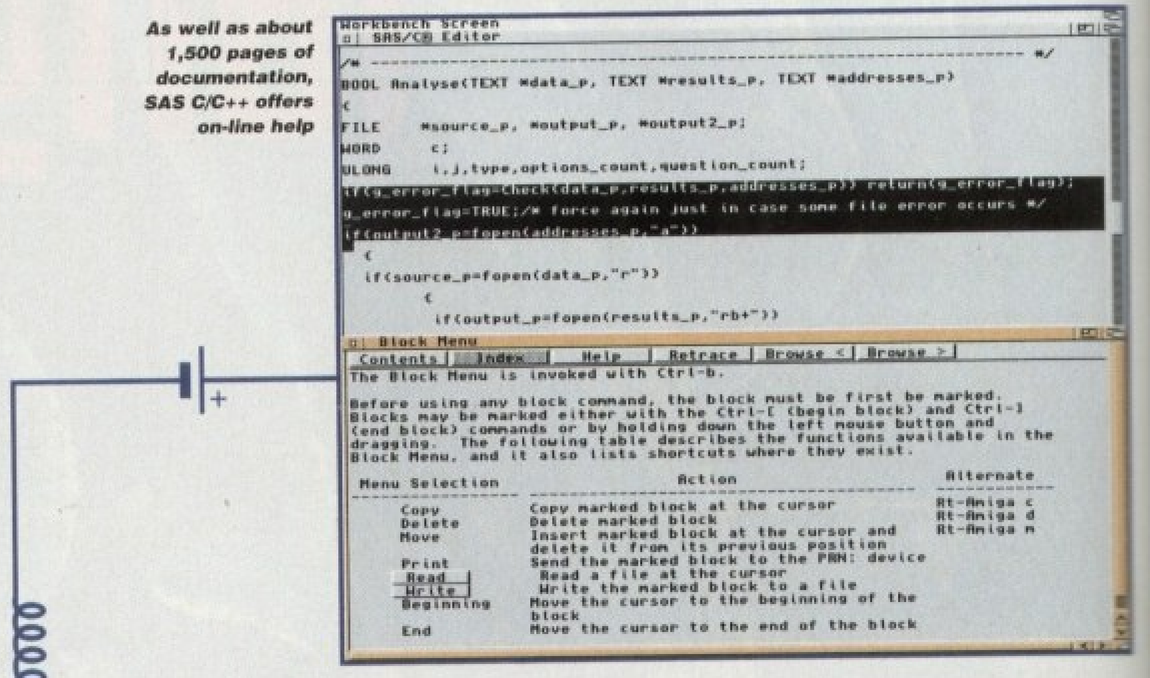
As many people are now discovering, learning to

C/C++ packages

SAS C/C++ v6.50

HiSoft

Price: £329
Students': £250
v6.xx upgrade: £59.95
v5.xx upgrade: £149
v4.xx upgrade: £209



As well as about 1,500 pages of documentation, SAS C/C++ offers on-line help

Version 6.50 of the SAS C Development System has just arrived and the most important news is that SAS have decided to bring the C++ language into the SAS C environment at no extra cost.

The software comes supplied on six disks. As well as the editor, C compiler and C++ translator, linker, debugger, function libraries and the Amiga header files, you also get a whole host of other utilities for tracing program execution, performing direct file editing and so on.

There are global and peephole optimisers that can improve the efficiency of the generated code, a disassembler, and even a 680x0 macro assembler thrown in for good measure. The compiler itself is fully Ansi-compliant and also extremely fast, due in part to the fact that the compiler driver, called sc, loads shared libraries to handle the various phases (instead of invoking multiple programs) and uses Global Symbol Tables (GSTs) which remain in RAM between compiles.

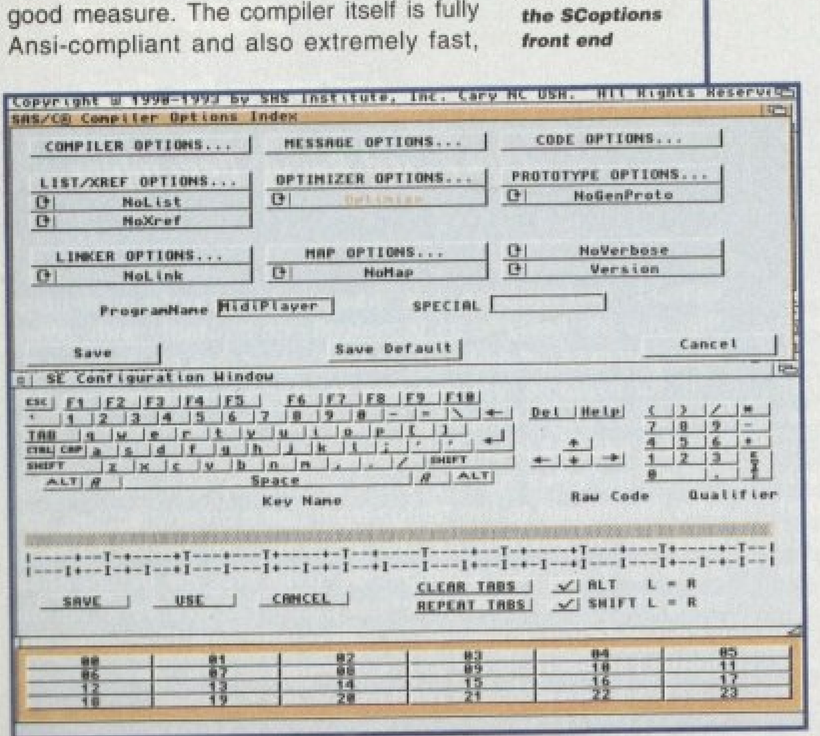
Other recently added enhancements make it possible to designate auto-initialisation functions that are called prior to the main() function being executed, and auto-termination functions (executed when the main code returns).

The compiler can also generate code to allocate a new stack to be created if the old stack runs out (good news for coders who write a lot of recursive code) and do a lot of other clever things besides.

All of the important compiler options concerning compiler operation, error message generation, file listing, code optimising, linking and so on, are done through an Intuition-based (gadget and menu-driven) interface called SCoptions.

The debugger, called CodeProbe, has been given a number of additional enhancements in the latest release but the main one is that it can now be used to debug C++ files.

The compiler's front end (called sc) which previously accepted C source code, Assembly language files, object files and libraries, now accepts C++ files as well.



Most of the important SAS C/C++ defaults can be set via the SCoptions front end

Although the C compiler parts of the package can be used with a floppy-based system, you need a hard disk in order to use the C++ translator.

If you are contemplating moving to SAS C/C++ then you ought to assume that a hard disk and a couple of megabytes of RAM are essential – the package will then work like a dream.

SAS C/C++ is a brilliant package with superb documentation (about 1,500 pages of tutorial and reference material) and an exemplary record of user support. There is nothing to touch it!

Manx's Aztec C

No current distributors

Price: £not known

This package is still used in the States but seems to have vanished from the UK market. Basically it's just being mentioned for completeness because Aztec C, at one time, provided the main competition to Lattice C – the package that became SAS C.

Aztec C had many good points and like Lattice it came with its own set of programming utilities (editor, librarian, debugger and so on) and a comprehensive function library.

use a C compiler package is quite a big commitment. The main problem is not understanding the C language (it is fairly easy to get to grips with), but learning about the way you interface with and use the Amiga's library routines.

If you've not used a compiler before you'll need to work hard and even experienced programmers can take up to a year to come to grips with C on the Amiga.

BRILLIANT

Once you're over the initial problems, though, everyone says the same thing... it's a brilliant language but you do have to be fairly disciplined as far as your approach to program design and coding goes.

C, incidentally, has changed in recent years and the original form is called K&R C after a couple of chaps called Brian Kernighan and Dennis Ritchie, the language's creators. There is now an American National Standards Institute (ANSI) standard for the C language and this improved form is called ANSI C. Given the choice it is ANSI C that you should learn to use.

C++ (pronounced C plus plus) is an object-oriented programming language developed during the early 80s by Bjarne Stroustrup's language team.

Throughout its development there has been a strong commitment to keeping C++ compatible with the C language. C++ supports a construct known as a class that allows programmers to define objects which have their own data characteristics and procedures.

The end result is that the programmer can work at a much higher level of abstraction and so avoid the nitty-gritty details that make the programming of larger projects difficult in other languages. You should not attempt to learn C++ until you are happy with C itself.

Assembler packages

Devpac 3 *HiSoft*

Price: £69.95

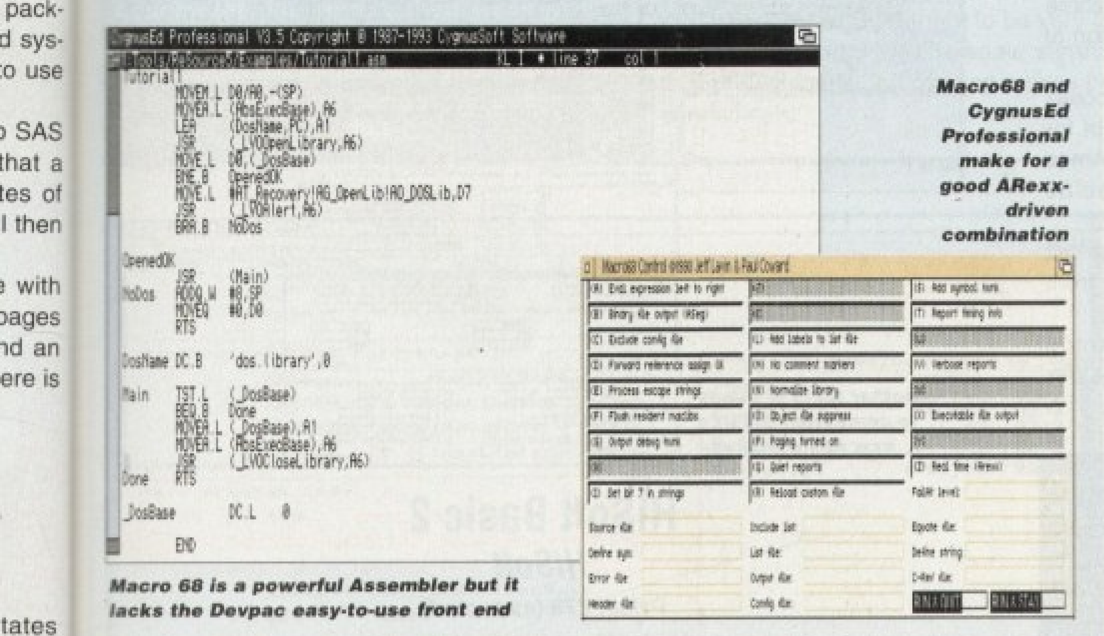
There's no doubt that the current Devpac package provides the ultimate Assembler environment available to the Amiga user at the present time. The editor offers multiple-file editing with full mouse-controlled cut-and-paste and the ability to open individually scrollable multiple windows on the same file.

There are bookmark set and locate facilities, macro recording facilities for memorising keypress sequences, and powerful Assembler/debugger integration options. As well as the editor, Assembler and debugger, the Devpac 3 package includes Blink, the Amiga's linker, a Commodore FD file converter and other utilities.

You also get the Assembly language include files, the standard run-time and link libraries plus extra maths and iff parse libraries), startup-code etc, and some example programs to get you started.

Macro 68 *Helios Software*

Price: £130



Macro68 and CygnusEd Professional make for a good ARexx-driven combination

Macro 68 is a powerful Assembler but it lacks the Devpac easy-to-use front end

Macro 68 is a fully featured, customisable, macro assembler for the 680x0 family of processors. Some of its more unusual features include support for Copper list programming, ARexx controllability, and recognition of both old and new style Motorola 680x0 syntax. Unlike Devpac it doesn't have an easy-to-use front end but most coders tend in fact to use Macro 68 in conjunction with an ARexx-based editor anyway.

An awful lot of work has gone into Macro 68 and in practice the Assembler does admittedly provide facilities that advanced coders could find very useful.

Having said that, it is not a particularly user-friendly package and in particular the manual lacks the soft, tutorial-style sections that make life easier for the newcomer to 680x0 coding.

> Even experienced programmers can take up to a year to come to grips with C on the Amiga

Compilers versus interpreters

We mentioned the basic difference between these two approaches in the jargon buster. To elaborate: If you've got a loop which contains instructions that are executed 500 times then the interpreter will translate the instructions within the loop 500 times as well as executing them 500 times. A compiler-based equivalent does the translation once and generates the necessary machine code.

When the program runs, all the translation stuff has been done already – so compilers produce programs which in general will run faster.

The disadvantage of using a compiler is that the process of creating a program is more complicated. You have to write the program (the source code) using a text editor, then compile it.

EXTRA CODE

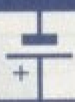
After that you may also have to link extra code (start up code, code for library functions and so on) to your program and only then can it be run.

If there is a bug then it's back to the editor, make the necessary changes, recompile and so on. There are quite a few tools around which help automate the process but it is still fairly long-winded.

Most interpreted languages are quite the opposite – you can stop a program, make changes, and then immediately run the new version. Interpreted languages are good for the development stages. Compilers are good for speed.

Some languages, most notably Basic, come in both forms and often the compiling facilities are so well integrated into the system that you barely realise that a compiler is being used.

Basic packages

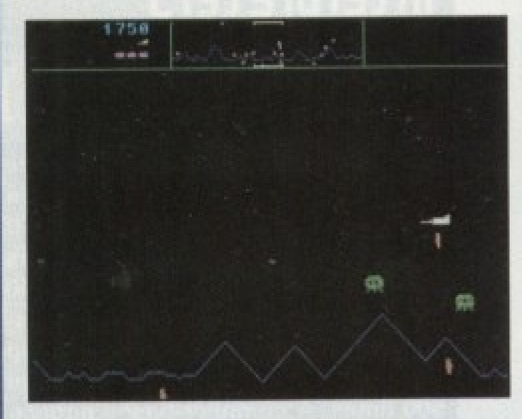


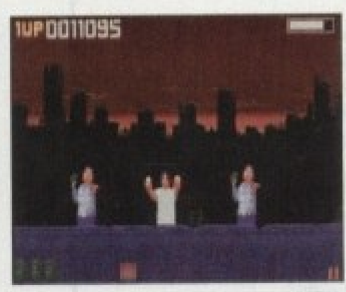


Amos users can quickly build graphical interfaces...



...but the language remains as simple as Basic





Just two of the many good quality games which the speedy Blitz Basic 2 is responsible for

Amos

Europress Software

Easy Amos: £34.99
Amos Professional: £49.99
Amos Professional Compiler: £34.99

Amos is a games-oriented Basic-style language which was designed to be easy-to-learn, powerful, and to take full advantage of the Amiga's graphics capabilities. It succeeded on almost all counts and, as a result, has become very popular indeed. Easy Amos, which is a sort of cut-down core version of the language, is a good package for the total beginner.

If you are already familiar with another Basic, or just wish to have access to some of the more advanced facilities right from the word go, then opt for the Professional version because it offers far more powerful features. Amos Pro, incidentally, provides some very powerful Amiga-specific graphics/sound extensions.

The long-awaited Pro Amos compiler arrived during the latter part of last year and, depending on the code being compiled, it can offer anything from slight to substantial speed increases.

The compiler is compatible with both the Easy Amos and Amos Professional packages but users of Easy Amos ought really to consider upgrading to Amos Pro before getting the compiler.

Blitz 2

Hobbyte

Price: £48.90

Blitz Basic is getting quite a name for itself because, as a compiled Basic, it is extremely fast. Programs are normally created using Blitz Basic's integrated editor/compiler environment (called TED) and an interactive run-time debugger is provided which allows you to examine the high-level source code as a program runs. Compiling itself is easy – you just select compile/run from the menu. Because of its speed, Blitz is great for games programming and this is where its main applications lie. Blitz 2 provides some language extensions called NewTypes and built-in list processing support.

A lot of the Blitz 2 facilities seem to be aimed at the more advanced programmer and this coupled to the rather unusual language extensions means that it doesn't seem to be particularly suitable for those approaching Basic for the first time.

GFA Basic v3.52

Data Media

Interpreter: £50
Compiler £30 extra

GFA Basic has been around for some time and although it still has its hard-core followers, interest from new users seems to be on the decline. Part of the reason for this would seem to be due to a general lack of support from Data Media. The package runs OK on older machines, and on the A1200, but since the release of GFA Basic v3.5 (the last major release) problems have appeared on some machines.

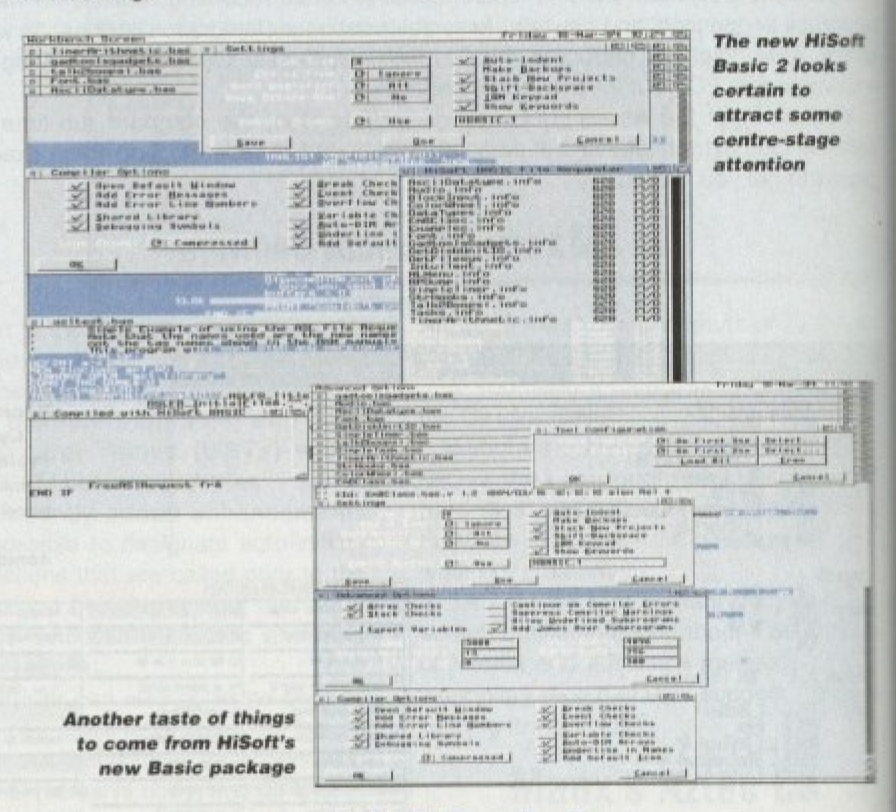
GFA Basic doesn't work properly on the A3000 or A4000 machines and users of various non-standard Amigas also seem to have had a variety of problems. Since it seems that there are no planned GFA upgrades or official fixes to eliminate these problems at the moment, we can only suggest, until were hear something positive from Data Media, that you do not jump on this particular bandwagon.

HiSoft Power Basic

HiSoft

Price: £29.95

This is a perfectly respectable Basic which has been around a while and is aimed primary at Workbench 1.3 users who want a cheap entry point into Basic on the Amiga.



The new HiSoft Basic 2 looks certain to attract some centre-stage attention

Another taste of things to come from HiSoft's new Basic package

HiSoft Basic 2

HiSoft

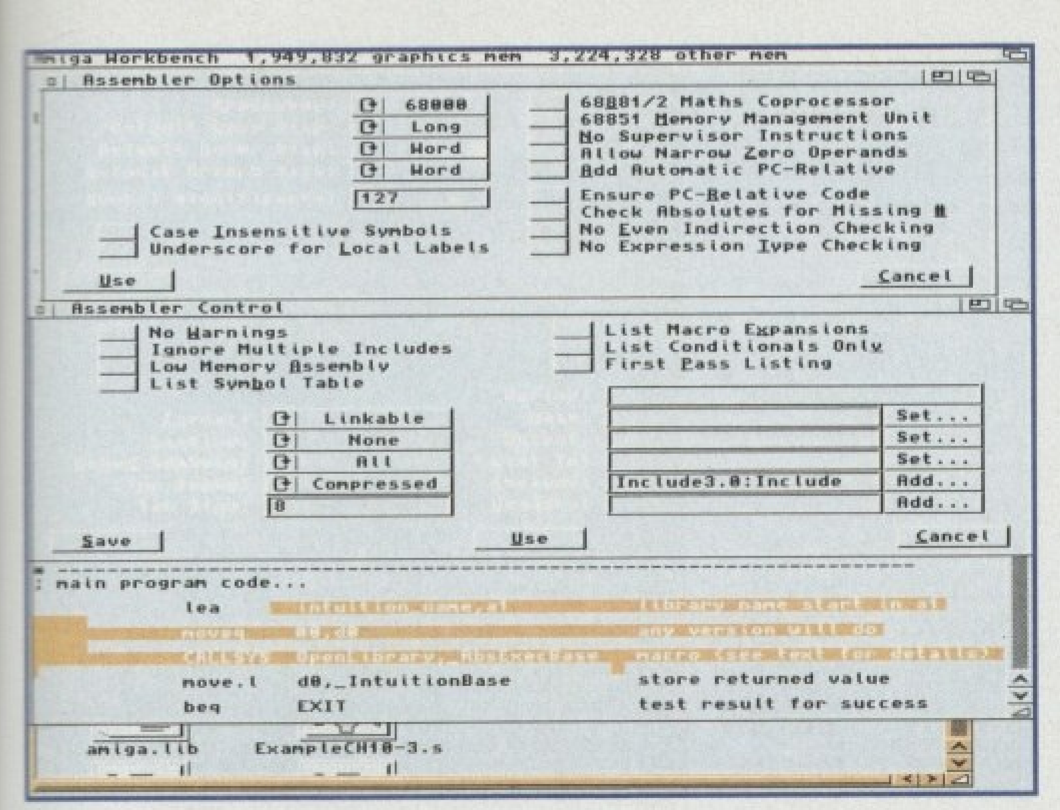
Price: £79 (expected)

Unlike the Amos and Blitz offerings, HiSoft Basic has not been specifically aimed at the Amiga games programming fraternity. It has simply been a very good, and very well supported, compiled Basic whose core facilities are broadly compatible with Microsoft-style Basics found on many other machines.

As we are going to press, a new version – called HiSoft Basic 2 – is being released, which offers a host of new Workbench 2/3 oriented goodies.

One major effect of the changes will be to make using the Amiga's Intuition and other operating system functions much easier. We also know that a new editor (actually the one that is now provided with Devpac) and a debugger are being provided.





Devpac Assembler control is via GadTool-style requesters

PD packages

As well as commercial products you'll find many languages available as public domain offerings. Cursor is a three-pass Basic compiler for programs written in Amiga Basic. NorthC, PDC, and Dice are popular C compiler packages. There's even Gnu C++ available for the more ambitious among you.

Charlie Gibbs deserves a mention here because he produced what is now a firmly established and respected, freely distributable Amiga Assembler package, called A68k. It forms the basis of a lot of PD Assembler packages and you'll also find it present on almost all public domain C compiler disks.

Verdict

Best C compiler

SAS C/C++ – there is absolutely nothing to touch this package. Needless to say it also provides the best C++ translator as well.

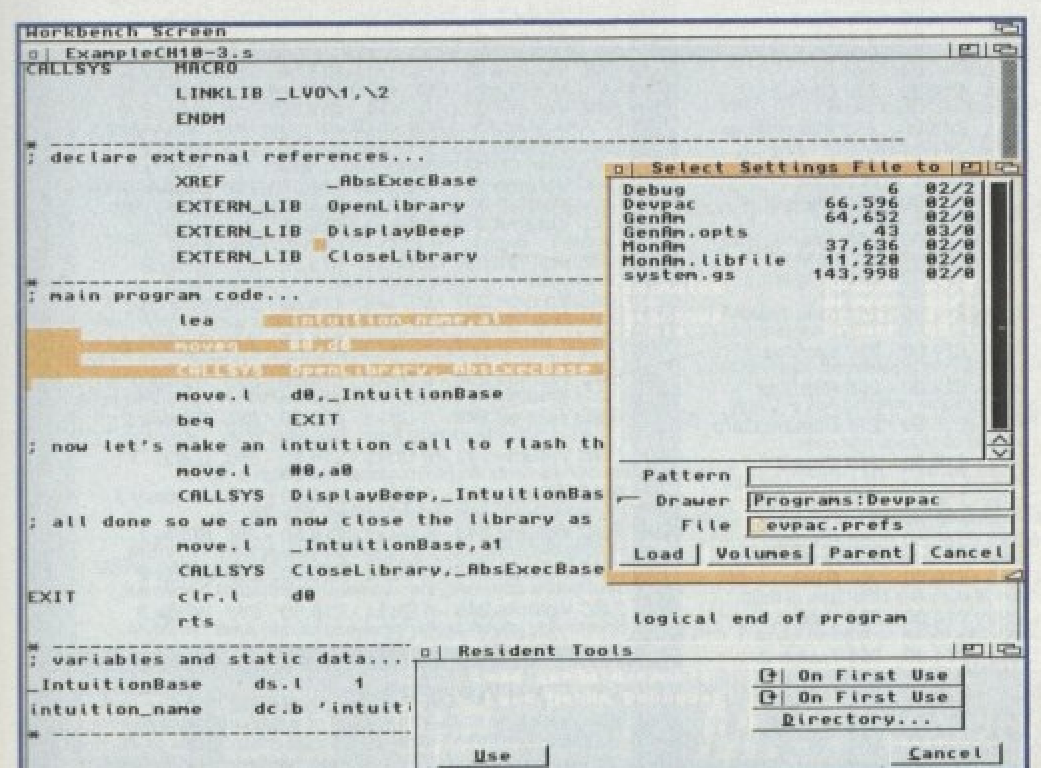
Best Amiga Assembler

Devpac 3 – again this package is in a class of its own.

Best Basic

We're going for Amos because it has proven support, good Amiga-oriented facilities, and a large established, and relatively content, user base. But the improved HiSoft Basic 2 (which we've not yet seen) is also certain to be very good indeed.

Since this could provide some surprises it might well be safest to wait until the HiSoft offering arrives before making any commitment.



Devpac's editor is easy to use and provides integrated control over the Assembler

Jargon buster



function library: A set of pre-written useful subroutines collected together in a separate file.

interpreters and compilers: High-level languages come in two main varieties – interpreted and compiled. The difference is that with an interpreted language you'll write a program and as it runs the interpreter takes each statement in turn, translates it (ie works out what it has to do), and then executes the equivalent machine code.

optimiser: A program that can automatically rearrange, ie optimise, the code you've written to make it either run faster or occupy less space.

portable programs: A program is portable if its source code can be transferred from one type of computer to another and made to run with little or no change. The more work needed to get the program running on a new machine, the less portable the code is considered to be.

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MORE 256 IFF COLOUR GRAPHICS FOR AGA AND 24 BIT AMIGAS

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Mixed bag of great artwork and pictures with a general SciFi theme.

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Stunning artwork with a Dungeons and Dragons theme.

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Spectacular artwork by the renowned fantasy artist Tim White.

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Spectacular artwork by the renowned fantasy artist Tim White.

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Spectacular artwork by the renowned fantasy artist Tim White.

VIDEOGRAPHERS EMC are teaming up with a leading film/production team with the aim of conducting weekend seminars covering all aspects of Amiga related video production and post production for the beginner, semi-pro and full Pro. If you are interested, send an SAE along with a brief letter detailing your interests and we will forward you full information & course prospectus when details have been finalised.

Basic packages



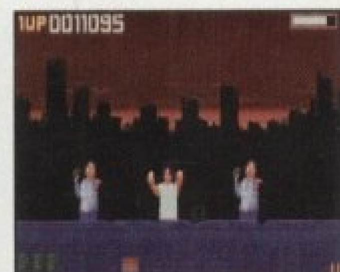


Amos users can quickly build graphical interfaces...



...but the language remains as simple as Basic





Just two of the many good quality games which the speedy Blitz Basic 2 is responsible for

Amos

Europress Software

Easy Amos: £34.99
Amos Professional: £49.99
Amos Professional Compiler: £34.99

Amos is a games-oriented Basic-style language which was designed to be easy-to-learn, powerful, and to take full advantage of the Amiga's graphics capabilities. It succeeded on almost all counts and, as a result, has become very popular indeed. Easy Amos, which is a sort of cut-down core version of the language, is a good package for the total beginner.

If you are already familiar with another Basic, or just wish to have access to some of the more advanced facilities right from the word go, then opt for the Professional version because it offers far more powerful features. Amos Pro, incidentally, provides some very powerful Amiga-specific graphics/sound extensions.

The long-awaited Pro Amos compiler arrived during the latter part of last year and, depending on the code being compiled, it can offer anything from slight to substantial speed increases.

The compiler is compatible with both the Easy Amos and Amos Professional packages but users of Easy Amos ought really to consider upgrading to Amos Pro before getting the compiler.

Blitz 2

Hobbyte

Price: £48.90

Blitz Basic is getting quite a name for itself because, as a compiled Basic, it is extremely fast. Programs are normally created using Blitz Basic's integrated editor/compiler environment (called TED) and an interactive run-time debugger is provided which allows you to examine the high-level source code as a program runs. Compiling itself is easy – you just select compile/run from the menu. Because of its speed, Blitz is great for games programming and this is where its main applications lie. Blitz 2 provides some language extensions called NewTypes and built-in list processing support.

A lot of the Blitz 2 facilities seem to be aimed at the more advanced programmer and this coupled to the rather unusual language extensions means that it doesn't seem to be particularly suitable for those approaching Basic for the first time.

GFA Basic v3.52

Data Media

Interpreter: £50
Compiler £30 extra

GFA Basic has been around for some time and although it still has its hard-core followers, interest from new users seems to be on the decline. Part of the reason for this would seem to be due to a general lack of support from Data Media. The package runs OK on older machines, and on the A1200, but since the release of GFA Basic v3.5 (the last major release) problems have appeared on some machines.

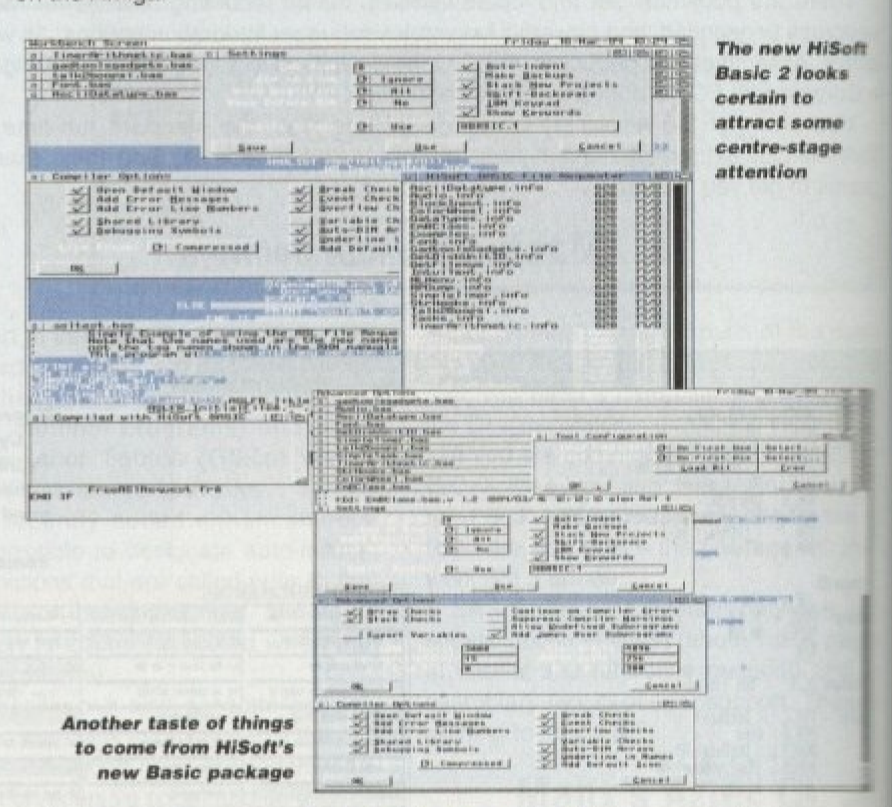
GFA Basic doesn't work properly on the A3000 or A4000 machines and users of various non-standard Amigas also seem to have had a variety of problems. Since it seems that there are no planned GFA upgrades or official fixes to eliminate these problems at the moment, we can only suggest, until were hear something positive from Data Media, that you do not jump on this particular bandwagon.

HiSoft Power Basic

HiSoft

Price: £29.95

This is a perfectly respectable Basic which has been around a while and is aimed primary at Workbench 1.3 users who want a cheap entry point into Basic on the Amiga.



The new HiSoft Basic 2 looks certain to attract some centre-stage attention

Another taste of things to come from HiSoft's new Basic package

HiSoft Basic 2

HiSoft

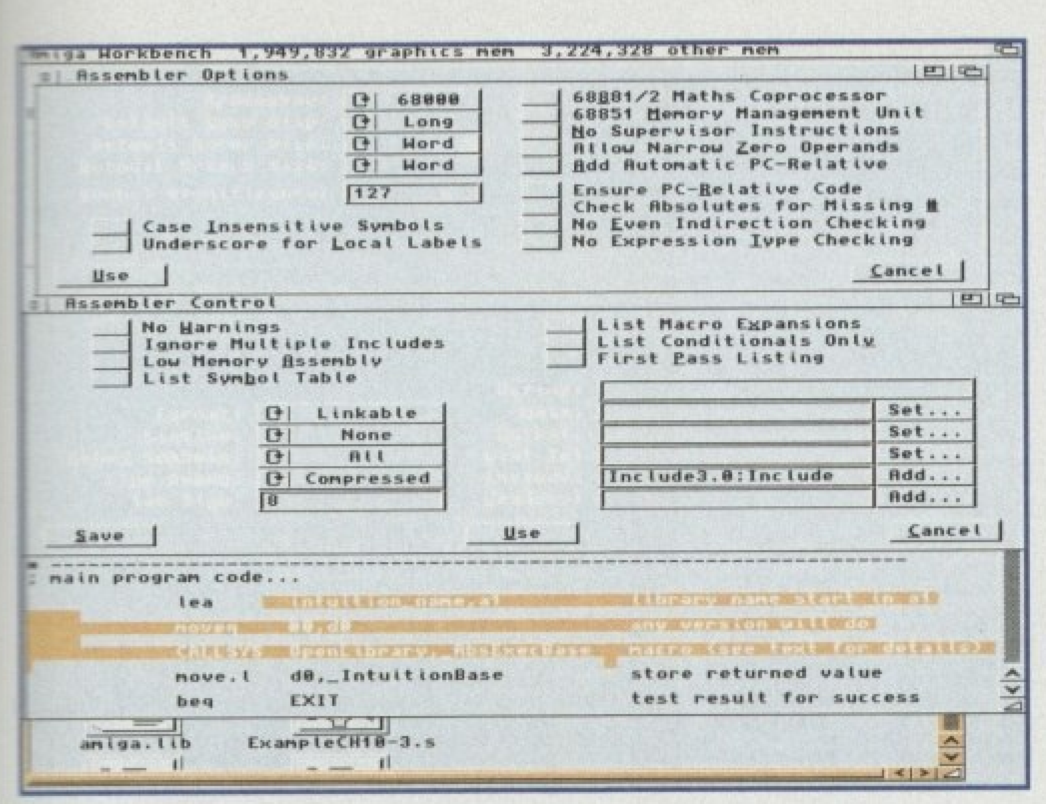
Price: £79 (expected)

Unlike the Amos and Blitz offerings, HiSoft Basic has not been specifically aimed at the Amiga games programming fraternity. It has simply been a very good, and very well supported, compiled Basic whose core facilities are broadly compatible with Microsoft-style Basics found on many other machines.

As we are going to press, a new version – called HiSoft Basic 2 – is being released, which offers a host of new Workbench 2/3 oriented goodies.

One major effect of the changes will be to make using the Amiga's Intuition and other operating system functions much easier. We also know that a new editor (actually the one that is now provided with Devpac) and a debugger are being provided.





Devpac Assembler control is via GadTool-style requesters

PD packages

As well as commercial products you'll find many languages available as public domain offerings. Cursor is a three-pass Basic compiler for programs written in Amiga Basic. NorthC, PDC, and Dice are popular C compiler packages. There's even Gnu C++ available for the more ambitious among you.

Charlie Gibbs deserves a mention here because he produced what is now a firmly established and respected, freely distributable Amiga Assembler package, called A68k. It forms the basis of a lot of PD Assembler packages and you'll also find it present on almost all public domain C compiler disks.

Verdict

Best C compiler

SAS C/C++ – there is absolutely nothing to touch this package. Needless to say it also provides the best C++ translator as well.

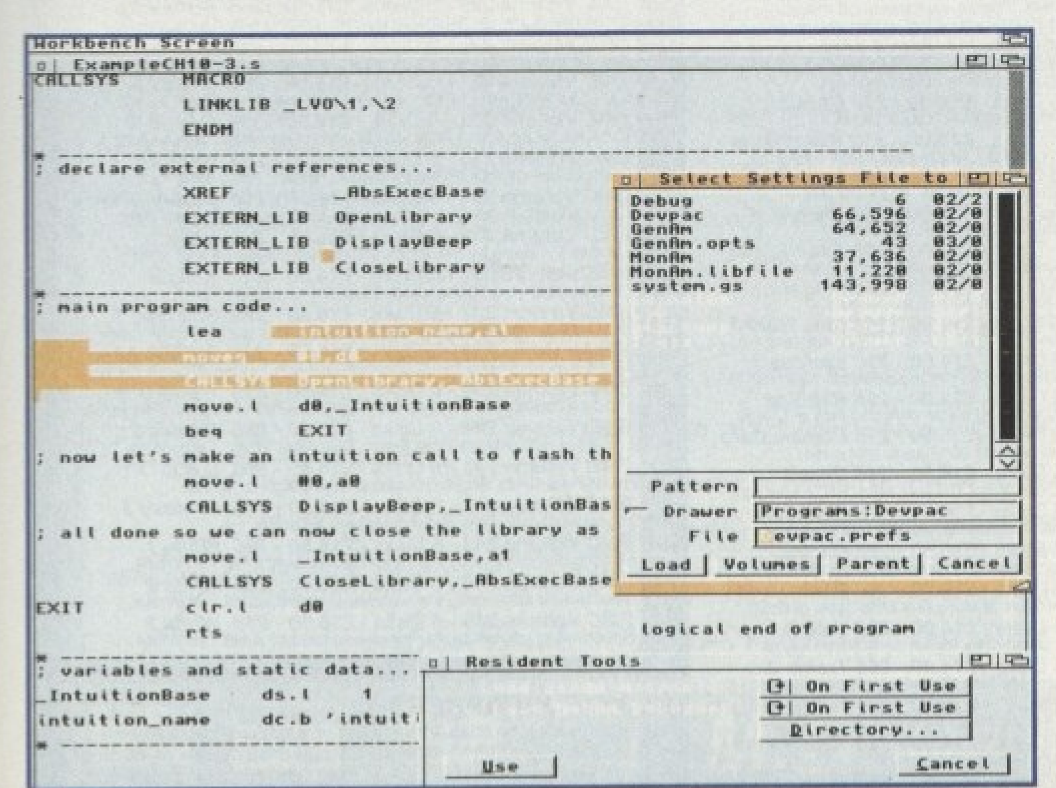
Best Amiga Assembler

Devpac 3 – again this package is in a class of its own.

Best Basic

We're going for Amos because it has proven support, good Amiga-oriented facilities, and a large established, and relatively content, user base. But the improved HiSoft Basic 2 (which we've not yet seen) is also certain to be very good indeed.

Since this could provide some surprises it might well be safest to wait until the HiSoft offering arrives before making any commitment.



Devpac's editor is easy to use and provides integrated control over the Assembler

Jargon buster



function library: A set of pre-written useful subroutines collected together in a separate file.

interpreters and compilers: High-level languages come in two main varieties – interpreted and compiled. The difference is that with an interpreted language you'll write a program and as it runs the interpreter takes each statement in turn, translates it (ie works out what it has to do), and then executes the equivalent machine code.

optimiser: A program that can automatically rearrange, ie optimise, the code you've written to make it either run faster or occupy less space.

portable programs: A program is portable if its source code can be transferred from one type of computer to another and made to run with little or no change. The more work needed to get the program running on a new machine, the less portable the code is considered to be.

Supplier contacts

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Wide open spaces

With the new Mo-Miga optical drive, your data can have as much room to run around in as you like. Stevie Kennedy goes for a gallop

Optical drives have recently taken a bit of a back seat to the DAT tape as a means of mass storage and back-up, but they have always offered a few major advantages, and with 4th Level's Mo-Miga 1.2 Gigabyte drive the format looks set to make a come-back in professional circles.

The Mo-Miga unit is a 5.25in disc offering 617Mb per side for a total of 1.2Gb driven, ideally, by an A4000 equipped with the A4091 SCSI-II hard drive interface.

As such, it is a professional user's device and one which is aimed primarily at those with huge data requirements such as videographers and musicians. Fitting either internally or externally, the drive works faster than SCSI-I hard drives, and in its final form with on-board 1Mb RAM cache, should be even faster.

The manufacturers claim 2Mb per second minimum transfer rate under AmigaDOS and up to 5Mb in fast SCSI-II burst mode – figures which we couldn't test as we looked at a pre-production version of the unit.

What was surprising, though, was the speed of the drive running under standard AmigaDOS filing systems. Just under 1.4Mb per second transfer rates (DiskSpeed 4.2 with 512k buffer) and an access time of under 40ms gives the drive a huge advantage over all previous optical devices (though SCSI-II no doubt has a lot to do with this). Mo-Miga will of course work with older SCSI-I interfaces, but performance is reduced.

Much of the unit's speed is gained through the Mo-Miga device driver. This important piece of coding sits between AmigaDOS and the drive and communicates directly using SCSI commands, so that when Mo-Miga's own filing system is used a faster synchronous burst mode can be utilised for streaming data to disc very quickly. Under the more usual desktop working conditions, Mo-Miga handles small files well considering the disadvantages of the optical medium. A new filing system developed by 4th Level, which will be shipping with the finished drives, will handle small files much more efficiently and faster than at the moment.

From its performance on our pre-production unit, the new system seems set to make Mo-Miga a very useable general purpose drive.

Other software supplied with the device makes it possible to set up a cartridge to work like a bulletin board. The Audit program is designed to enable the system operator to track all user of the machine, and can be a valuable aid to security.

Passwords can be set, and various levels of user access set so that some may perform all function whereas others can only read data, and so on. Security can be varied from partition to partition and disc to disc, so for example it is possible to allow full use of general software while locking people out of sensitive data areas.

Other software includes Mo-Miga Exchange to allow users to swap discs without worrying about unauthorised or untimely use of their data, and a variety of utilities for controlling the discs themselves, such as a blanker to stop the disc spinning after a period of inactivity, thus saving wear and tear.

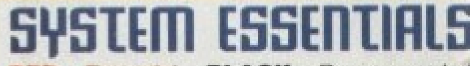
In all, this is a well thought out and fairly complete system rather than simply an optical drive, and one which should render sterling service in any professional environment.

Home users might never see a Mo-Miga, but BBS sysops, videographers, and musicians would be advised to give the unit a try. AC

Half a Mo!

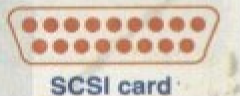
Mo-Miga's capacity and speed makes it an ideal drive for mulitple partitions holding a variety of programs. The problem with using removable media in such a way, however, is that the Amiga can become confused when what it thought was a fixed hard drive is no longer there. Swap cartridges and you can quickly run into problems. To body-swerve the danger, Mo-Miga's software uses a startup script for each partition which contains the assigns and other commands relating to any software held on that partition. In addition, the partitions are automatically dismounted.

This approach requires that the user moves any assigns from the user-startup script to the relevant partition startup script, but once done the advantage of not panicking the Amiga every time a disc is ejected makes up for the initial hassle.





Zorro required



SCSI card

The bottom line

Ease of use 6
Implementation 8
Value for money 7
Overall 7

Product: Mo-Miga optical drive
Supplier: Ramiga International
Phone: 0690 770304
Price: Drive £2,300, discs £140 each



The Exchange program can be used to control when users can access a disc and the level of access they are entitled to

Audit allows the superuser to keep track of which actions have been carried out, and thus detect hackers at an early stage

TURBO TOUCH JOYPAD

This is a radical new style of hand held controller. Just pass your finger over the sensor – No more finger fatigue or blisters. And thanks to better diagonal and circular (360°) control, the newest and most challenging games are easier to control and more fun to play. The Turbo Touch 360 brings a new dimension of control and comfort to video game play.



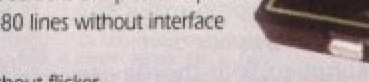
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Turbo Touch Joypad	£16.99	9556

VGA MONITOR ADAPTOR

The AMI.VGA Adaptor is a handy little gadget which gives most Amiga owners easy access to the higher resolution display of a VGA monitor.

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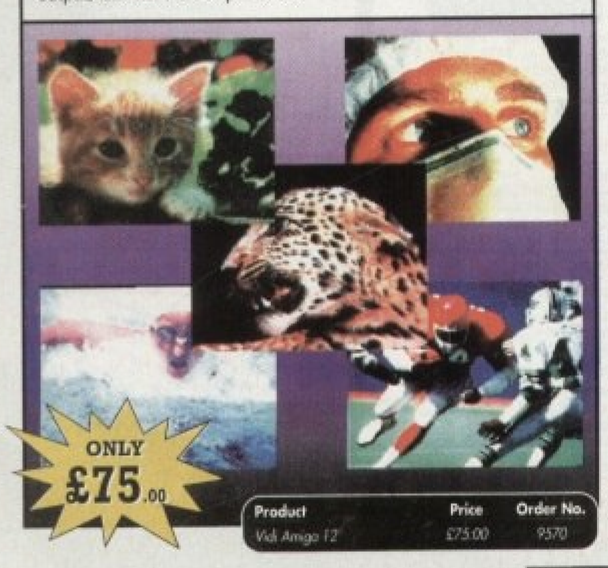
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VIDI (24) RT

This will push your Amiga to its limits. Real-time image capture in excess of broadcast quality. True colour, photo-realistic picture files grabbed from any video source. Display resolutions up to 1472 x 576. It offers all Amiga users 24-bit image capture, with no restrictions on video equipment or Amiga hardware.



ONLY £249.00

Product	Price	Order No.
Vidi (24) RT	£249.00 (RRP £299)	9565

VIDI (12) RT

This offers all the functionality and specification of Vidi (24) RT, but in 12-bit. Capturing 4096 colour images in real-time from any video source. It comes complete with plug in device with easy to install software. Simple enough for the novice yet powerful enough for the professional.



ONLY £175.00

Product	Price	Order No.
Vidi (12) RT	£175.00 (RRP £199)	9566

CLARITY 16

At last from Microdeal comes the first ever low cost Stereo 16 Bit Sampler for the Amiga. Contains two 16 bit analog to digital/digital to analog convertors to allow stereo sound digitising. The system can record sound from suitable equipment such as CD players, cassette recorder or any 'AUX' or line level signal source via the stereo phone sockets provided. Stereo phono outputs are provided for connection to an amplifier or mixer. The hardware plugs into the serial and printer ports and so can be used with the whole Amiga range of computers. As if this is not enough, Clarity 16 also contains a Midi interface for use with a Midi keyboard or similar, which is compatible with major commercial software.

The Editor program provides the user with the ultimate in power and sophistication, packed with features which appear for the first time for any home computer. The fully multi-tasking, window styled editor allows individual samples to be loaded into the computer and edited separately.

1Mb Ram is recommended.

ONLY £129.95

Product	Price	Order No.
Clarity 16	£129.95	9977

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This superb package enables the Amiga user to back up their discs efficiently and effectively.

Includes NEW 'Cyclone' cartridge for copying protected software (requires a second disk drive

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A stylish Pen Mouse with quality construction and smooth fast movement. It has Micro-Switch buttons which is ideal for DTP, artwork etc. It comes with its own Optical Pad

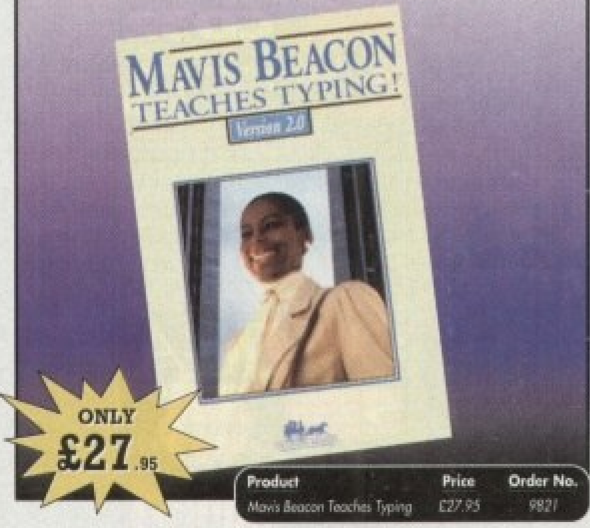


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Product	Price	Order No.
Optical Pen Mouse	£34.99	9581

MAVIS BEACON TEACHES TYPING

Simply the finest typing program in the world, this award winning software takes you step by step through the keyboard. Coaching you at your own speed and skill level, monitoring your progress, the stunning graphics, the help facilities and complete typing textbook makes learning to type interesting and fun.



ONLY £27.95

Product	Price	Order No.
Mavis Beacon Teaches Typing	£27.95	9821

VIDEOMASTER

The Ultimate Multi Media System for your computer. Videomaster is a revolutionary breakthrough in home computer technology combining the complexity of a Video Digitiser with a Sound Sampler in a single easy to use low cost unit, to bring you the ultimate home multi media video/audio editing package.

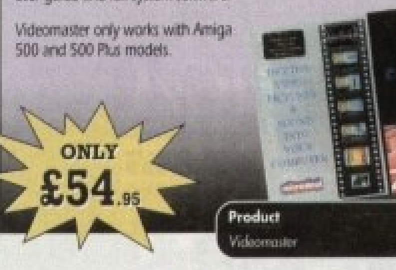
Videomaster will allow you to record monochrome, quarter screen pictures at speeds of up to 25/30 frames per second (Europe/USA) providing ultra smooth playback at high speeds. These pictures can be recorded from the output of a video recorder or directly from a video camera or a camcorder and replayed on your computer screen.

Videomaster can produce great 'grey' scale pictures from any video source with a pause or still frame facility. The colour filters provided in this package will enable the users of video cameras or camcorders to produce high quality still pictures in glorious colour.

Videomaster features a sound sampler as part of the hardware, though the software can be used with external sound samplers. This is supported by a full feature sound recording and editing program within the videomaster software. The Videomaster system also features a video sequencer.

The complete package contains the Videomaster video digitising and sound sampling hardware unit, TRI-Colour filters for colour camera use, comprehensive user guide and full system software.

Videomaster only works with Amiga 500 and 500 Plus models.



ONLY £54.95

Product	Price	Order No.
Videomaster	£54.95	9603

TECHNO SOUND TURBO II

TT2 has been completely redesigned with CUSTOMISED PULL DOWN MENUS and many superb features have been introduced.

These include DIRECT TO HARD DISK RECORDING, so now you can make those really long recordings without running out of memory.

The built in TRACKER program allows you to input sampled notes from the computer keyboard so that you can create your own melodies.

The SEQUENCER allows you to link very long samples together without the need to display the waveforms on the screen, and is ideal for re-mixes and song compilation.

The MINI MODULE enables samples to be played on all 4 audio channels from a MIDI keyboard, Drum Box or External Sequencer. (Midi Interface required).

Samples can now be stored on an edit list which allows rapid access direct from memory. A wide range of CONTROLLABLE effects (including novelties) can be added to the samples including Variable Delay, Variable Echo and Variable Synthesis.

The REALTIME EFFECTS are all controllable and can be saved as presets (up to 999). New features include SWEEP, RAMP and PITCH UP/DOWN.



ONLY £39.95

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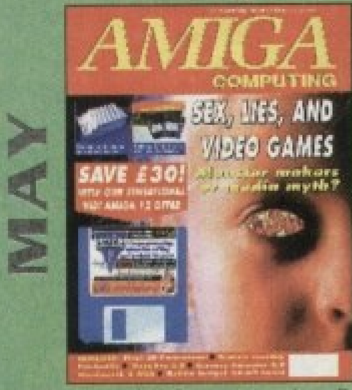
AMC 5



Back Issues & Binder

If you've missed any of these issues, now's your chance to put things right, by either buying an individual issue or a full six months' worth. But hurry - stocks are limited!

MAY



Are computer games harmful? Scanner round-up. Reviews of Pixel 3D Pro, Retina 24-bit board, Vista Pro 3.0, Scenery Animator 2.0.
FREE: 24 page supplement – Guide To Hardware.
ON DISK: Vidi Amiga 12 (grab diaabled), Funs School 3 Wordsearch module (over 7 year olds).

JUNE



We go behind TV's role playing show - Knightmare. Guide to budget DTP software. Reviews of Big Alternative Scroller 2, ProPage 4, Bars and Pipes Pro 2 and Mavis Beacon Typing 2.
ON DISK: Infofile, Scala HVT (save disabled) VALUED AT £50

AUGUST



The latest three professional video add-ons reviewed - A Video Y/C, IV24 v2.0 and Videopilot 330. Survival guide to printers. Reviews of Ami-Back, Ami Tools and Kid Pix.
ON DISK: CineMorph jr VALUED AT £50

SEPTEMBER



Caligari 24 reviewed. Survival guide to hard drives. Reviews of Phone Pak, VLab Y/C and Alfa Colour Hand Scanner.
ON DISK: Image FX demo

OCTOBER



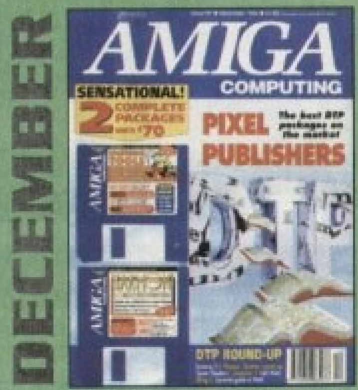
Amiga CD32 taken apart. Survival guide to modems. Hard drive round-up. Reviews of DSS8+, Technosound Turbo 2, Brilliance, AMOS Pro Compiler and Quarterback Tools Deluxe.
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NOVEMBER



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DECEMBER



DTP round-up of the best DTP packages available. Survival guide to SIMMs, ZIPs and DRAMs. Reviews of Essence 2, Picasso 2, Hama 292 and MiniGen Pro. ***FREE*** Software encyclopaedia paperback book
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XMAS ISSUE



Money saving guide for new Amiga users, Word Processor round-up, RAM expansion round-up, Survival guide to floppies.
ON 2 DISKS: Take Two animation editor VALUED at £80, Fusion Paint VALUED at £30.

JANUARY



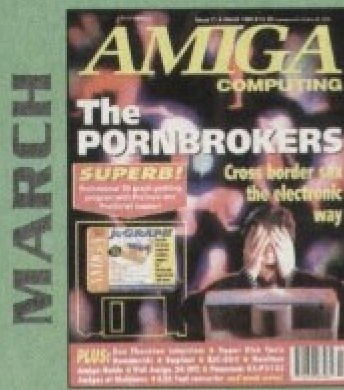
Virtual reality – the new frontiers, Samplers survival guide, Floppy round-up, AC awards, Montage 24, Show report, Database round-up, Paint package round-up. ***FREE 64 PAGE BOOK:*** All about the A1200
ON 2 DISKS: Design Works VALUED at £50, Vidi Amiga (12) RT Software

FEBRUARY



Amigas in the movies. Round-up of sound samplers and flight simulators. Reviews of Wavetools, I-Card, Protext v6.0, Star SJ144, TrapFax, Syndesis and Spectrum 28
ON 2 DISKS: The Publisher and MRBackup Professional VALUED at £40.

MARCH



A look behind Babylon 5, PC and Mac emulation and a survival guide to monitors. Reviews of Vidi Amiga 24 RT, Humanoids, BJ600 and A2A.
ON DISK: JcGraph

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amiga update

Digital realities

The Amiga's leading 16-bit sampler just got a major refit. Paul Austin oversees the improvements

SunRize Industries have held the top spot in the serious sampling business for years with a combination of excellent sound quality, unrivalled flexibility, and a natural affinity to other third-party hardware and software.

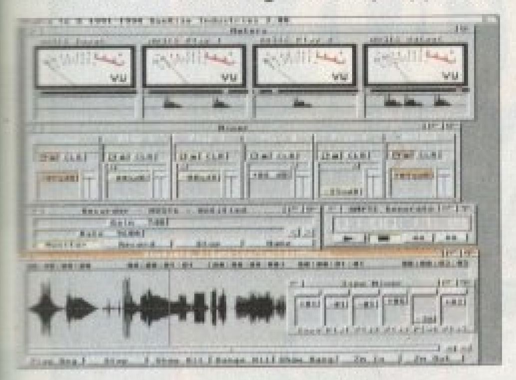
In the face of new competition from both Wavetools and the Toccata direct-to-disk systems, SunRize have decided to consolidate their position with release of version 3 of their Studio 16 control software.

Although the actual hardware remains identical, the new front-end certainly shouldn't be considered as a simple facelift. The most important element of the new package has to be the introduction of drag-and-drop technology as part of Cuelist control.

For those unfamiliar with the software, the Cuelist is basically the program's internal sequencer. After recording and editing your samples, it enables you to arrange them over the eight tracks of the AD516 or the four of the AD1012.

In a brilliant piece of design, the Cuelist has been completely overhauled and now provides a graphical rather than numerical approach to the problem of sequencing samples.

Better still, everything is now totally mouse-driven with a new drag-and-drop approach



Quite simply the best direct to disk sampling software in the business

enabling graphic representations of each sample to be shunted between tracks and along the time-line with a simple mouse click.

Perhaps even more important is the arrival of a range of tools which allow samples on the same track to fade, crossfade or butt up with adjacent samples – again no typing required.

Thanks to this feature, hours – if not days – of painstaking editing can be avoided, and more importantly any alterations are completely non-destructive. If you don't like a mix or crossfade, simply grab the sample and slide it closer or further away; it's literally that simple.

As you'd expect the software offers a variety of linear and non-linear fade styles – all user definable of course – which when added to the unbelievable simplicity of simply sliding the samples back and forth makes Studio 16 easily the best pro audio solution on the machine.

In addition to sample mixing you're also provided with punch-in/punch-out recording direct into the Cuelist, which again is a dream for professional musicians and videographers.

Add to that the finishing touch of totally automated ping-ponging – again within the Cuelist – and you have the makings of a masterpiece. For those unfamiliar with musical terminology ping-ponging is simply a means of combining existing tracks into a mono or stereo pre-mix – thereby freeing the component tracks for fresh recording.

Combine the power of the Cuelist with the program's existing ability to record and adjust fader and pan positions in real time and you have arguably the best truly non-linear direct-to-disk recording and editing system on any platform. However in the case of SunRize, internal talents are only the beginning.

As you may already know, Studio 16 has a natural affinity with the Amiga's premier sequencing package Bars &Pipes Pro 2, thanks to the ability of both SunRize boards to generate SMPTE timecode which can be passed internally to software.

MULTIMEDIA

Better still, the SunRize controls can even appear within the B&PPro2 interface. As a result you're free to combine the Midi and multimedia talents of the standard sequencer with the sampling exploits of Studio 16.

As you'd expect, the primary use for the SunRize within B&PPro2 is to provide live virtual tracks which sync precisely with the Midi output of the sequencer, thereby brings vocals, guitar and other formerly analogue elements into a truly digital environment.

It's also possible to append individual samples to specific Midi notes, thereby enabling drum tracks and vocal hooks to be built-up from the profusion of CD-based sample libraries on the market.

In addition to software, Studio 16 also provides a direct link to digital video via the same SMPTE generation used by B&PPro2. As a result, either the 12 or 16-bit board can be linked directly with the PAR animation recorder to provide a 16/12-bit soundtrack to accompany the 24-bit video of the PAR card.

> The software is in my opinion the only credible option for anyone involved in professional Amiga audio

In addition, if the PAR is used in combination with the optional AD3000 TBC/real-time digitiser, you have perfect audio/video sync which could even enjoy simultaneous Midi and multimedia support from B&PPro2.

As you've probably gathered, the combination of the SunRize hardware and the new software is in my opinion the only credible option for anyone involved in professional Amiga audio.

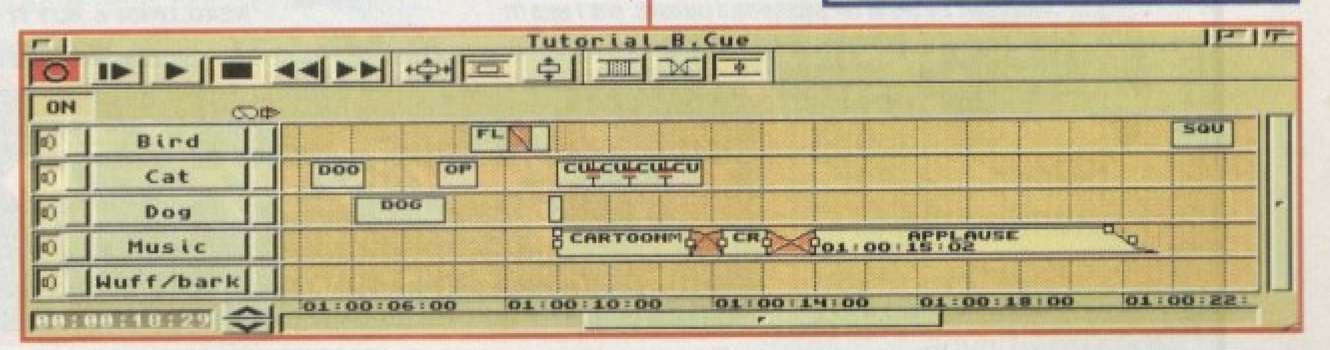
Although the opposition both offer excellent sound quality, they simply can't match up when it comes to usability. Neither offer SMPTE or Midi support at the moment, and certainly can't compete when it comes to joining forces with other products.

Unfortunately there's a price to pay for near perfection and in the case of the Studio 16 it comes to a heart stopping £200 for the software upgrade alone.

Obviously if you're happy with the existing software stick with it, but if you're a heavy user who's looking for improved productivity and unbelievable ease of use you'd be insane not to invest in this excellent – if rather expensive – upgrade.

SunRize software upgrades are available from: Premier Vision Tel: 071–274 4407

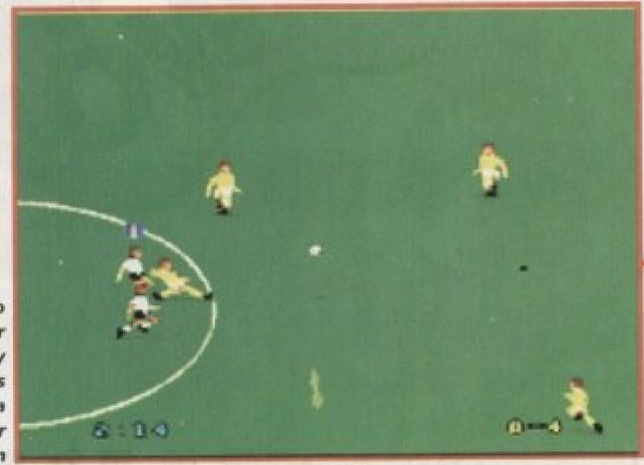
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The sequel to the near legendary Kick Off 2 is coming to a screen near you soon

Can you kick it?

The 1994 World Cup is coming this Summer and along with it are about a billion football games. The one which looks like becoming the firm favourite for the top spot is Kick Off 3 from Anco.

It's the follow up to the legendary Kick Off 2 which shattered sales records and soared to the top of the charts. Kick Off 3 promises to be packed full of dynamic and totally unique new features.

Unlike its predecessors, the third game in the series will be viewed from the side rather from above. New features include special moves such as flick ups and diving headers and 30 different set plays for corners and free kicks giving the most realistic dead ball situations ever.

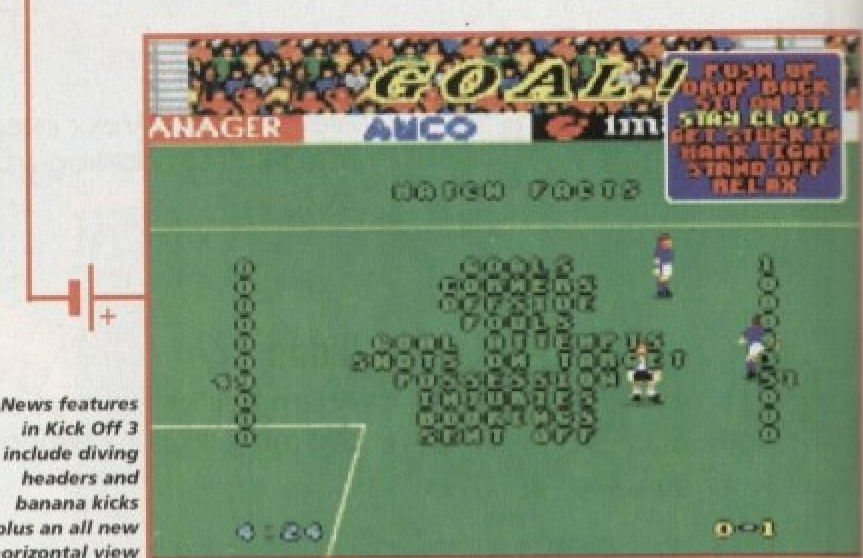
Over 2,000 frames of animation have been used to create smooth, fast flowing action which the creators say make Kick Off 3 the most realistic soccer game ever.

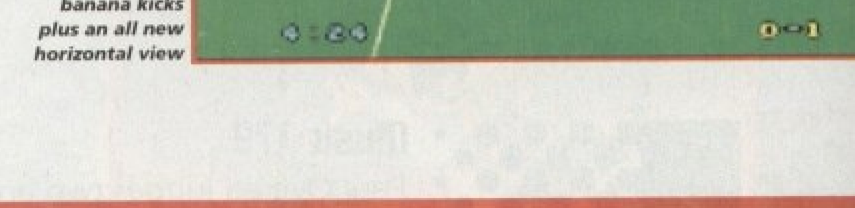
We shall see if what they say is true when it arrives later this year, but by all accounts Kick Off 3 is going to be absolutely massive.

system online



The European Computer Trade Show has now been and gone, but System was there to find out what's going to be hip and happening in the future world of Amiga games





News features in Kick Off 3 include diving headers and banana kicks plus an all new horizontal view

The Return of Dark Seed

Software publisher Cyberdreams has announced that Dark Seed will soon be available for the Amiga CD32. Dark Seed, winner of the highly coveted Software Publisher's Association Award for Best Fantasy Role Playing/Adventure Program, has sold over 135,000 units worldwide, and continues to be a best-selling product among science-fiction enthusiasts.

Cyberdreams collaborated with Surrealist HR Giger to produce the gothic horror adventure. Giger is world renown for his work on feature films such as Alien, Poltergeist and Alien 3.

Giger revolutionised the look of science-fiction with his unique biomechanical style, which depicts the synthesis of biology and technology as they would have evolved without the influence of man.

In Dark Seed you play Mike Dawson, a science-fiction writer who has just moved into a Victorian mansion. As you explore your new home, you discover a gateway to a parallel universe inhabited by sinister and horrific beings whose sole intent is to destroy all of humanity.

Mike has only three days to solve the mystery or he will undergo an evil and bizarre transformation.

The CD version of Dark Seed is expected to have an enhanced soundtrack including digitised speech and even more spectacular Giger-inspired graphics.

Although it's not scheduled for an Amiga release, Dark Seed 2 will be released later this year on the PC, Macintosh and Sega CD systems. It will pick up from where the first Dark Seed left off and will involve even more diabolical machinations by the aliens of the Dark World.

Dark Seed 2 will take advantage of the latest computer technology and feature more digitised sounds and animations, plus more importantly an expanded story and improved puzzle structures.

Hopefully Cyberdreams will eventually release it on the Amiga because I know there are adventure gamers out there just dying to get their hands on the sequel.

The H.R. Giger inspired adventure, featuring the trials and tribulations of a science-fiction writer, will appear on the CD32 later on in the year

System Technology

The section where we shine a spotlight on the major players in the computer industry and their latest and forthcoming hardware and software

Sega has announced that work has ceased on the Jupiter, the 32-bit Saturn-based cartridge machine and is being switched to a similar project codenamed Mars, destined initially for the US and European markets.

Mars is different from the Jupiter in that it is a 32-bit upgrade for existing Sega 16-bit hardware and is designed to fit into the Mega Drive's cartridge port rather like the Master System Power Base converter.

3DO's UK launch has now been given the provisional release date of May. It also looks as though the UK price will be a lot lower than previously reported and this is due to the price being cut in the States. The system will now cost $499.95 in the States which is around £300.

3DO software is steadily increasing and the latest release schedule lists 22 new titles that should be out between March and May. New titles include Jurassic Park, Sewer Shark, Out Of This World and the Psygnosis spectacular, Microcosm.

Sega Japan have just launched a new hand-held version of the Mega Drive entitled the Megajet at a cost of around £90. The machine which features a small LCD screen is currently being used on first class Japan Air-Line flights.

Empire take off



Empire have delved into the growing game market with their imaginatively titled Empire Soccer

Not a company to rest on their laurels, Empire have got a huge bundle of releases planned from now and until the end of the year. We've already previewed Dreamweb and Cyberspace, both of which are due for a Summer release, but Empire have got some more delightful nuggets of software tucked up their sleeves.

Due for release in June is the creatively-titled Empire Soccer which apparently captures all the excitement and fast paced action of the World Cup competition. Empire Soccer will feature an extraordinary depth of gameplay coupled with some dazzling high resolution 256-colour graphics.

On the pitch you'll be able to perform moves such as diving headers, banana kicks, overhead kicks, back passes and power shots. Empire are trying to put emphasis on the games smooth scrolling and it's highly reactive ball and players.

Empire's second release, The Dawn of Aerial Combat, is a return to the skies with a state-of-the-art World War I flight simulation. Each event is played out in superb 3D with full control of 15 aircraft. The game takes a detailed look at dozens of actual situations from WW1 and provides background information on real-life aces and planes.

Scheduled for a September release, The Dawn of Aerial Combat is looking very good indeed and you can expect a in-depth System preview in the near future.

Valhalla from Vulcan

Vulcan Software are a brand new software house who are hoping to make a name for themselves in the Amiga marketplace.

Their first release is Valhalla: Lord of Infinity which has been in production for almost a year and is scheduled for a June release.

Billed as a speech adventure, Vulcan claim that Valhalla is the very first game of its type on the Amiga. The finished version will have a handful of disks entirely dedicated to the aural side of the product.

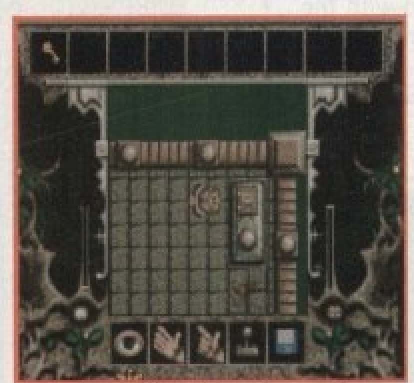
The game is viewed from a top-down perspective of the main character, Valhalla, an innocent elfish kind of creature.

The finished product will be a collection of logical problems which get gradually more and more complex as you progress through the levels.

Programmed by two graduates, Lisa Tunnah and Paul Hale Carrington, Valhalla is looking very impressive and Vulcan's first entry into the cut-throat world of Amiga games could well become a big success.



Valhalla is Vulcan Software's first product and it has been billed as the world's first speech adventure



The hero of Valhalla is an innocent elvish creature who is trying to turn wrongs into rights

Pool is just one of Ocean's new budget titles coming your way within the next year

Ocean get Mighty

Mighty Max is an inch-high adventurer who is currently a top-selling toy across Europe and the US. Not only does he appear in a range of toys, but he has his own television series and range of videos.

It thus comes as no surprise that Mighty Max, via the software talents of Ocean, is going to appear in his very own computer game.

True to the futuristic theme of the cartoon, the game features an innovative split screen two player mode. During the fast-paced action, Mighty Max must recover as many as 400 components of the world's most powerful weapon before his arch-enemy, SkullMaster, uses it to destroy the Earth. In two-player mode, each player will have separate components to assemble, and each is able to sabotage the others attempts. With five scenes, each with five levels, of frantic head-to-head action, Mighty Max is, allegedly, set to make a mighty mark on the Amiga at the end of the year.

Other Ocean news involves their Hit Squad budget label. Recent negotiations have lead to Ocean acquiring the rights to republish 12 of Virgin Interactive's software titles.

Paul Millar, the Hit Squad Sales Manager, commented: "The Hit Squad is synonymous with value for money and quality and the Virgin titles will certainly strengthen our position as the best budget label around.

"All of the 12 titles are outstanding in their own right and I am proud to have them in the Hit Squad portfolio."

The Virgin deal will add to the label's already impressive line-up of titles such as Lure of the Temptress, Jimmy White's Whirlwind Snooker, Dune, Archer Maclean's Pool, Realms, Supremacy, KGB, Reach for the Skies, Shuttle, Dune 2, Legend of Kyrandia and Cannon Fodder.

All of these signings are due for release within the next year

System Selections

In this section we tell you which pieces of software have shined over the last few months and why they should have a place in your games collection

Skidmarks



Acid Software's racer has got gorgeous graphics, superb sound, is highly playable and unbelievably addictive. It's a very polished racer that totally destroys all of its competitors. I could go on for hours praising this game, but I really only need say two words – buy it.

Simon the Sorcerer



Adventure Soft's game is cram-packed with puzzles, funny quips and silly asides. While it's a title that you're not meant to take too seriously, it will give you plenty to think about if you're to complete it. Simon the Sorcerer is a very large, well thought-out graphical adventure that'll keep you happy and out of harm's way in the land of giants, fairies and dwarves.

Man Utd Premier League Champions



I've thrown away my copies of Sensible Soccer and Goal because Krisalis have created an ultimately more satisfying football game that will appeal to the true football fan.

The graphics are nicely presented and highly realistic. Couple this with its level of playability and addiction and you've got a hell of a game on your hands. Goal and Sensible Soccer fans will want to have this game's babies. Buy it and float to football heaven.

Labyrinth of Time

The bottom line is that Labyrinth is a superb addition to the adventure genre. It has amazing stylised graphics and a level of depth and playability seldom found in computer games these days.

It's great news for punters who've put faith in Commodore and the CD32 because this is a title which starts to truly show a little of the machine's capability.

Hero Quest 2: Legacy of Sorasil



Legacy is very easy to pick up, using a point-and-click system in conjunction with the mouse. This is typical of every aspect of Sorasil - generally it's easy to use and even easier to find your self absorbed within.

This combination of D&D style rules blended in with the visual aspects of combat and spell-casting will make Hero Quest 2 an instant success with RPG lovers.

K240



OK, so it might not have spectacular graphics or sound, but it has it where it counts and that is in the gameplay and addiction departments. I'm finding it really hard to fault K240, but I suppose if you play enough it will eventually get a bit unvaried, but the later aliens are incredibly tough and will take a lot of experienced K240 playing to beat.

Gremlin's space strategy is a truly engrossing game that will keep you awake until the early hours and I heartily recommend it as this month's game to get your mitts on.

The scores on the doors

Our rigorous scoring system explained

As part of the new look and feel of the software section we have taken a fresh look at the way we score our reviews. In our opinion, review scores have lost their context as percentages; some products have been receiving scores which were only a few percentage points short of perfection, when in truth the products were only marginally above average.

OK, so the scores might seem unnaturally low at first, but that's only because other scoring systems tend to be on the high side and perhaps not as comprehensive or honest as they could be.

In the long run you'll receive a more concise and reader-oriented review that's geared towards the consumer.

0-20 ....This is given to the lowest of the low

21-30......An all-round poor game that may have a single saving grace

31-40 ......Just below the average, perhaps let down by a few indiscretions.

41-55......Games of this score are roughly average with 50 being a perfectly average score.



56-66 ......This is an above average game and is worth buying. For this reason it would be awarded the BRONZE award.



67-77......A game of high quality that we have no reservation in recommending. Anything of this ilk would be given the SILVER award.



78-89......A brilliant title. Definitely worth buying and almost the definitive of its kind. This standard of game would receive the GOLD award.



90-100 The best in its genre. This benchmark title receives the PLATINUM title.

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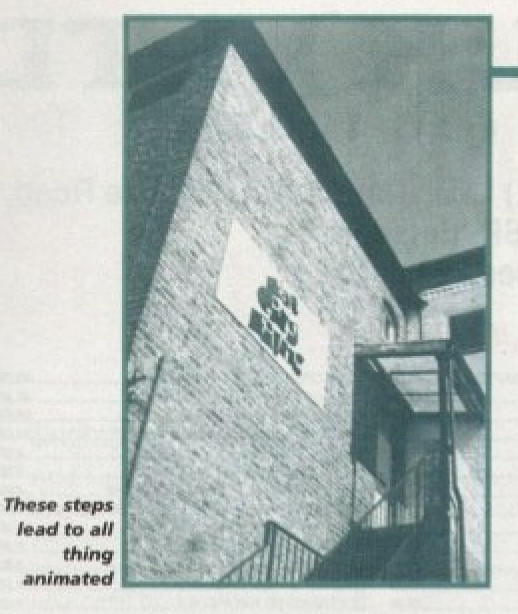
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(Dept AMC JUNE 94)

EXPORT ORDERS WELCOME

system analysis

Art attack

CD Technology has allowed software houses to include complicated animated introductions. Simon Clays visits a Manchester animation studio to meet animator extraordinaire Vincent James


These steps lead to all thing animated

The rain doesn't depress you in Manchester. You get that much of it that after a while that it becomes just a mild irritation. In this instant it's doing me no favours. I'm late, lost and having trouble finding my intended destination.

It can't be that tough though, this is Chorlton-cum-Hardy. The Chorlton, of *Chorlton and the Wheelies* fame. The home of the most famous animation studio's in the United Kingdom, Cosgrove Hall.

The company that bought you Danger Mouse, Duckula, Wind in the Willows, and, perhaps to their eventual cost, the full-length animated film *The Big Friendly Giant.*

Back in the middle 80s, Cosgrove Hall was undoubtedly the largest employer of Manchester's creative population, and churning out hour after hour of television quality animation.

That is, until the recession began to bite harder than one of Baron Greenback's monster creations, and Cosgrove Hall began to collapse.

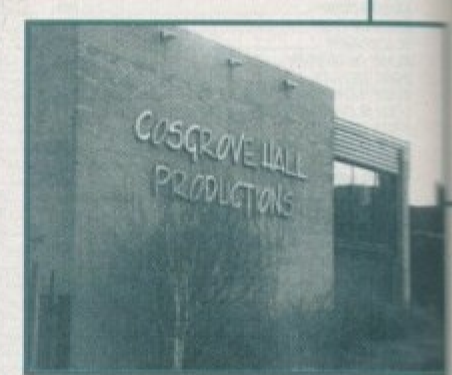
After embracing animation and cartoons, the TV companies saw them as old hat, and cut huge holes in the budgets.

Suddenly, the streets of Manchester were littered with animators and background artists. Fortunately though, as one medium began to dry up, another one emerged.

In this case it was due to the advent of CD technology, and the software industry's desire to improve the quality of its product with introductions and link animations.

As this research information runs through my head once more, I suddenly notice the rain distorted sign I'm after, the key to my destination and home to Fat City Films.


Philbert the frog, one of Vincent's creations and a bit of a TV personality



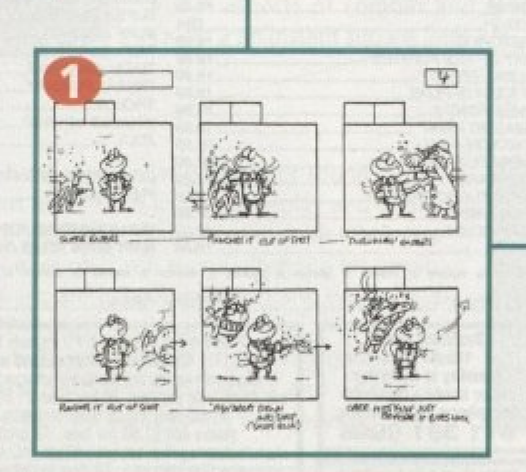
Cosgrove Hall, birthplace of Danger Mouse and Duckula

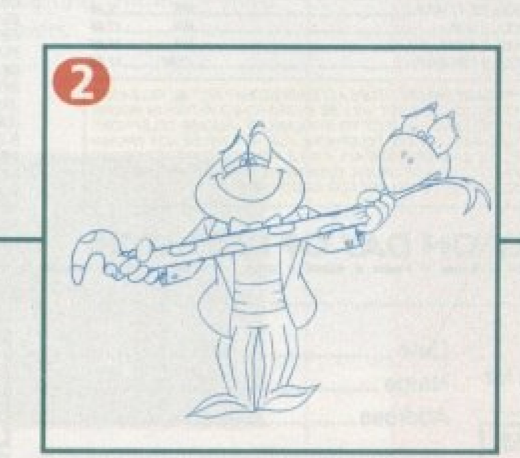
Fat City, along with a couple of other Manchester based animators, have managed to break into a field that could have never become a reality if technology hadn't intervened.

The man who initiated this slight swagger away from TV animation into the world of computer games is Fat City company director, Vincent James.

Sitting back in the comfort of Fat City's paper-strewn offices, I sip coffee and wait for Vincent. It feels homely, and I can't work out whether it's

AMIGA CD32 JAMES POND 2 ROBOCOD









Camera shy background artist Aileen Raistrick



Vincent relaxes in the splendour of Fat City

How it's done...

1 Fat City receive the script, some ideas generated by meetings and a storyboard

2 A first draft of the moving animations is drawn and then sharpened into a blue-line animation. This is then transferred onto video, and shown to Millennium.

3 Following an approval by Millennium, the animation is tidied through a process called clean-up. In this procedure the blue-lines are inked over and tidied up.

4/5 Then the line drawings are photocopied onto transparent cells using heat imaging. Then the background artists, Aileen Raistrick and Michelle Graney, paint the background cells on the reverse of the cell using water-based paints.

The different layers having gone through the same processes are all put together. To avoid mistakes all the action is tied up using a field size. Basically, this is a square which aligns each layer, and allows the animators to know exactly where something is taking place.

6 From here, the finished cells are taken to film. Animation is generally filmed on 16mm, 35mm and Hi-band video. From here, the film is sent to be processed.

If the rush print meets the required standard, then it goes to editing and splicing. Then, the rush print is sent back to the processors and the answer print comes through.

Then, if Millennium are satisfied with the answer print, the film goes to dubbing for sound to be added.

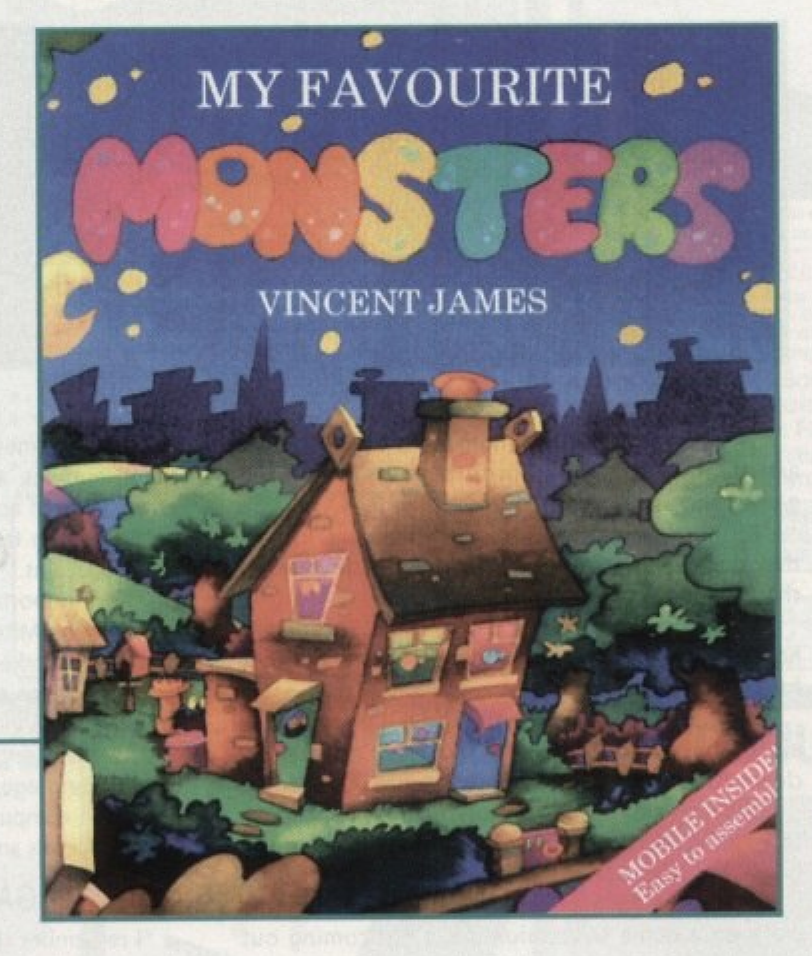
The only exception to this whole procedure is if lip-synching is required; then, this needs to be added at a much earlier stage.



Paul Johnson draws more than the dole



Michelle Graney deep concentrating on another background



because everywhere I look I'm seeing wall-mounted televisual icons from my youth like Danger Mouse, Penfold and Duckula, or whether it is just plain comfortable.

Vincent appears, and after a short bout of cursing busy schedules we get down to the business of the morning. After a few words about some of the framed shots on the wall, I eventually managed to ask Vincent how he got started in animation.

"I left school with no formal kind of art qualification. In fact, I had a job at Aerospace. But, I hated it that much I left for a job in a design studio.

"They were knocking out rag-mags and that kind of thing, and ever so often there'd be some form of spot cartoon, which I got into doing."

"This went on for about five years, until Cosgrove Hall approached me. Having seen some of my strips they asked me to join."

Vincent explains that Cosgrove Hall were just on the verge of massive expansion: "When I started there, there were about 60 of us, six months later and there were 120 – it was crazy."

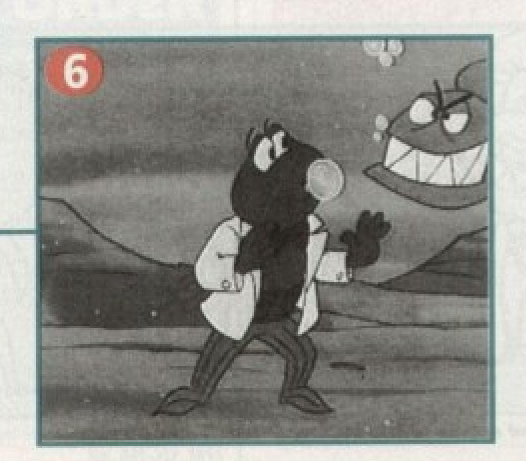
On this note, the conversation swings around to Vincent's work at Cosgrove Hall. "While the majority of the animation staff were involved on BFG, five of us were busily creating Duckula in collaboration with the American cable channel Nickelodeon."

"I was frustrated and decided to freelance. After

➤







that I went to Leeds and worked on a project called Fiddly Foodleburg. It was a totally spaced-out cartoon series, I mean totally drug-oriented and created by this burnt out old hippy.

"But, some good did come of it, as I learned all the other techniques of animation like camera and sound, things that at Cosgrove Hall you'd never have been allowed to learn. Oh, and I met Aileen, who does all the painting of the backgrounds in Pond."

And this moved us very neatly onto the subject of James Pond, and Fat City's association with Millennium Interactive. Pond Three features an animated introduction which some of you may well have seen extracts from on the CD32 version of Pond 2. Vincent explained how the two companies came together:

"I met Millennium because of a mate I had from my freelance days. He said he'd got some design work from this computer place."

"They turned out to be Millennium, and needed someone to design their animation sequence for them. Anyway, I met them and got the job."

"We were going to do the backgrounds, but we soon found out that it wouldn't be that sensible a thing to do. the main reason being that it's just too technical for us."

PROBLEMS

"They had a lot of trouble with our drawings. You see, computer artists repeat things and loop different backdrops. It was killing us!

"We were just drawing backgrounds, and they thought they were lovely, but they ended up in the bin because they would have soaked up that much memory."

With this in mind I asked Vincent what kind of problems they encountered during production.

"Problems, problems, yes, there were plenty. We produced a test piece that didn't work [laughs]. We did watercolour wash backgrounds, and of course they have a watery look to them. And, because the girls mix paints randomly, the colours are impossible to match."

Having visited Millennium Interactive on several occasions, I've always found them to be quite a progressive go-ahead team. The products they release are quite innovative, so I'm interested to find out what the relationship is like.

"They're not awful [laughs louder], they're a good bunch of guys. But in terms of animation they don't really know what they're on about. They tend to be really finnicky about little things."

"Basically there's a clash between art-based creatives and computer creatives. They both want to achieve roughly the same thing but go about them in completely different ways."

As the tempo and volume of the conversation shifts up a gear, we slip into computer games in general:

Order to move

During my visit to Fat City Films I met up with Paul Johnson who was given the arduous task of explaining the techniques employed in manufacturing animation for the Pond and Pinkie sequences.

While in conversation Paul, a 25-year-old graduate in animation, told me that before he'd worked for Fat City and done a stint at Catalyst, the company that animated the introduction to Soccer Kid.

Paul described the method through which Millennium get animated game movements off Fat City.

"Millennium send down a set of storyboards and rough character designs. Trial and error has already told us that there are certain things you can't do on a computer."

"For example, characters can't walk up or down slopes any steeper than 22 degrees. If the hill is steeper then the character just doesn't look right."

"Anyway, being well aware of the pitfalls, we then draw rough pencil animation cycles. Obviously, we'll redesign anything we think's a little flawed."

"Then, the pencil animations are cleaned up and turned into what we call blue-line animations (which speak for themselves). These are then transferred from film onto video, and we send them off to Millennium to be transferred into DPaint."



Pinkie encounters countless hazards on his mission of peace

"What happens at the moment is that the non-artists, in the shape of programmers, make the games, and use us to fill in missing bits."

"But these guys aren't trained animators. In fact, they don't know the first thing about techniques of character movement, they just guess."

"Most of the games lack invention. The games houses think they create stylised characters, but they have no idea how to bring something to life.

"Most of them are still in the mid-80s using bloody air-brushes on muscle-bound blokes or marine-boy clones. They haven't got a clue."

Following this line of enquiry further, I'm curious to establish if Fat City have designed any computer game characters of there own.

"Yes, we've done a couple of things. We did some work on a game Millennium have got coming out soon called Pinkie. For Pinkie we did some of the in-game animation, and the title sequence."

Vincent went on to explain how he came to be working on Pinkie:

"I first saw Pinkie when it first arrived at Millennium. I was down there by chance, and these guys started hawking this thing they'd got."

"It was one of the nicest things I'd seen. I loved the colours and the palette they'd used on the backgrounds – quite psychedelic."

"We're also doing some of the character movements for James Pond Four. They fax down some rough outlines, and we give them back three different versions of actions, like thrusting or jumping."

"They then transfer them into an Amiga and use them in DPaint."

"More importantly, we're actually doing a game called Mega-Mite. It's kind of reversing the process that we've worked under before."

As it's a project that's been kept pretty tightly under wraps, Vincent takes me down another avenue and begins to enthuse about the future:

"Not long ago, you couldn't have this type of animation in computer games. Now, we have inserts in between levels and all sorts."

COMPUTER GAMES

"I remember the early attempts to convert animation to CD. It was all jerky because it missed frames. Now technology has shifted a little further and they put it straight onto a CD."

"I'm not too up on computers, but I hear people raving about full motion video. The potential for interactive animation is huge."

Drawing to a close, I ask whether computer games are proving to be a lucrative new avenue for animators:

"On the whole computer games have been very healthy for animators. At the end of the day it's work. I mean you want to make a Tom 'n' Jerry, but you've got to pay the bills."

Glancing down I notice my empty coffee cup. Vincent follows my stare, offers to re-fill my mug but politely informs me that he's got to fly off to Leeds. Having one of final query, I push my luck and ask him who his favourite cartoon characters is.

The answer comes immediately, and with an authority that is without question:

"Felix the Cat without a doubt. He is the best designed character of all time. Simplicity in its essence, and 50 years ahead of its time."

With this, the meeting comes to a close, Vincent on his way to Leeds and I'm back on the animated streets of Chorlton.



Early sketches for Pond and his girlfriend Angel Fish

Sierra World Cup Soccer '94 Sierra

Sierra are making their way onto the football simulation scene with Sierra Soccer. From what we've seen the game will have a whole host of options and features.

It can boast built-in intelligence for accurate computer simulation, a new free kick and corner directional system allowing you to choose height and distance, 4,000 frames of player animation, and a 3D view for fast and smooth graphics.

Other features will include a replay option with fast forward, rewind and freeze frame; animated sequences of referees and injuries to players; and digitised sound and speech effects.



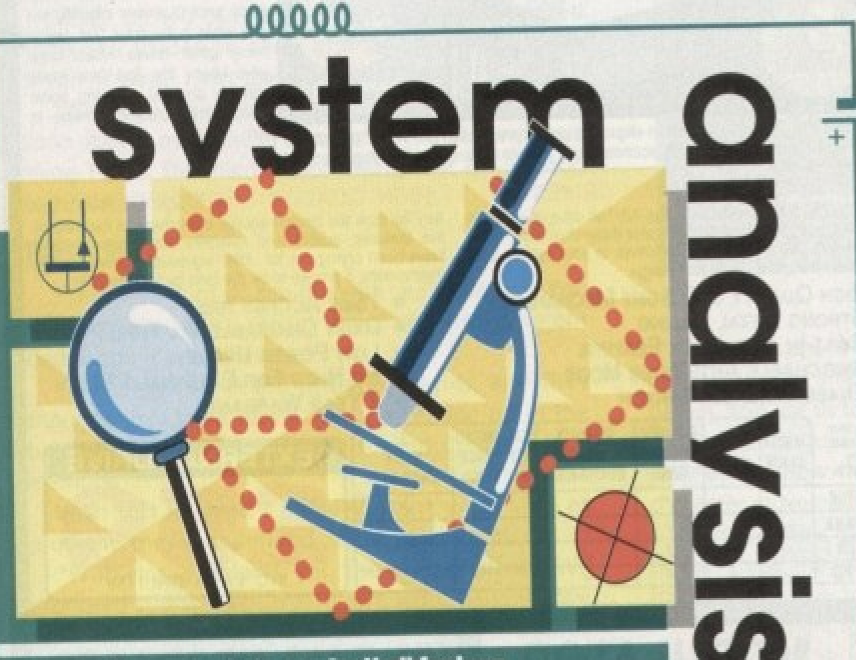
Sierra Soccer liven up the game with animated sequences such as this red card incident



Make tactical decisions on substitutions

Introduction

With the forthcoming World Cup this June, many software houses have seen a great opportunity for a swift marketing ploy – namely bring out as many football titles as possible to cash in on World Cup fever which is bound to hit the country. But never before are we going to be so spoiled for choice, as the reviews on these three pages show.



This month we conclude our football feature, as Tina Hackett and Adam Phillips take a look at what the future holds in store for us on the soccer gaming front



Fantasy Foo



The official licence tie-in inevitably appears everywhere

World Cup USA '94 US Gold

This major World Cup tie-in will contain many variables you can alter, like being able to change the glue factor; whether you prefer to play the ball sticking to your foot or whether you like it to bounce away from you.

Many features from other football games have been added to World Cup USA and so it promises to be one of the most comprehensive releases around.

The game is set for release around June – just in time for the start of the World Cup.



Kick Off 3 Anco/Imagineer

Kick Off 3 was set to hit the shelves sometime in May on many formats including Amiga and the CD32, and it's sure to be heavy competition for the other releases.

Thirty-two top international teams, each with their own distinct playing styles, compete for the World Cup. The main change is to be the game's view, from overhead to side-on.

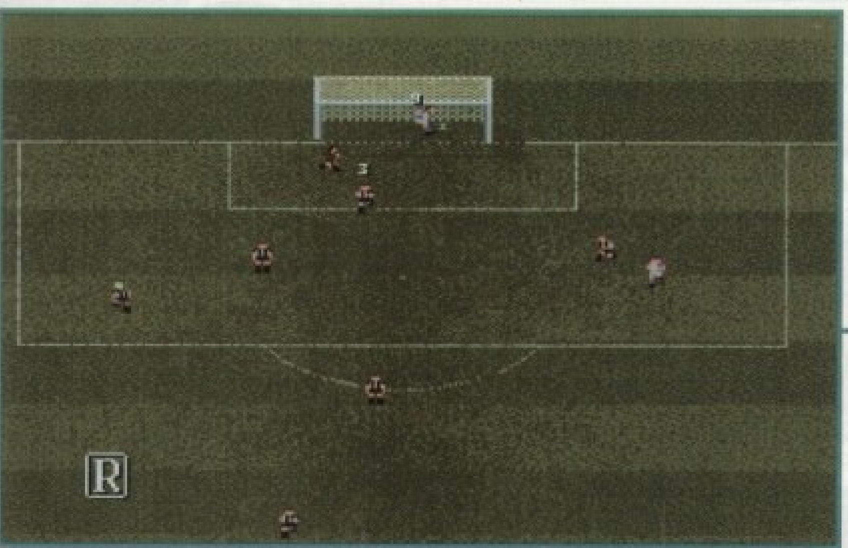
Steve Screech, one of the original programmers of Kick Off 2, is overseeing the development, while Enigma Variation will be dealing with the coding.

The SNES version is nearing completion and it's already looking impressive, but the Amiga version promises to be a lot faster as well. The game can boast 2,000 frames of animation and state-of-the-art sound effects.

New options will include practice, arcade and simulation modes. At any point in the game you will be able to access match reports or give team pep talks to give your players specific instructions.



Graphically the game contains a lot of detail



The latest release looks set to be another success for Krisalis

Sponsorship

A common trend in sports games, football games in particular, is to get a big name to endorse your product. What bigger name than Manchester United?

We talked to Tim James, Krisalis's PR man, about their Manchester United Trilogy. Tim James is far from being boastful when he says that the trilogy has been the most successful product that Krisalis have released.

The original idea of managing director Tony Kavanagh, it was obviously a good move, but how much of it do they believe was down to the product, rather than the name behind it?

Tim is quick to point out that no matter what a product is called, the actual game is what counts, and it's all down to how successful the programmers have been.

However in the early days, with Krisalis still establishing themselves, Tim believes that having such a licence behind their first United release did a great deal to increase their credibility.

Having such a club behind their game could have its drawbacks, namely that fans from rival clubs will avoid their game on principle. But Tim has no doubts that having Manchester United behind them does not have disadvantages.

He believes that as one of the most successful clubs in Europe they have gained great respect from football fans even those from rival clubs. As opposed to choosing other big clubs such as Liverpool, Arsenal and Leeds, Manchester United have earned much admiration for what they stand for.

However, Manchester United didn't have a great deal of say in the development of the game, unlike some of Krisalis's other releases such as their Graham Taylor licence where Taylor played a large part in helping create the right statistics and features for the game. Manchester United simply placed their trust in the experts and left them to it.

As for the future, there are no United releases on the horizon but Krisalis have just renewed their contract with the team. So, who knows, perhaps Manchester United – Premiere League and FA Cup champions?

Sensible World of Soccer Sensible Software/Renegade

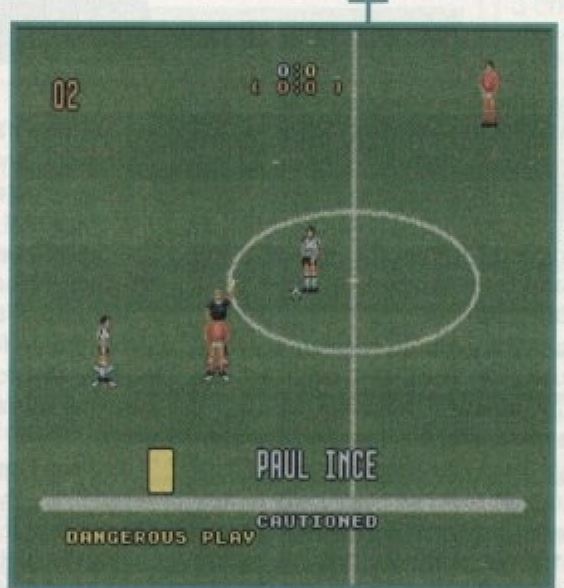
Renegade and Sensible Software are looking to release The Sensible World of Soccer sometime in August of this year. The game promises to be different in that it will combine all aspects of a good management game, while retaining its original playability.

As team manager, the player can choose from 1,500 world club sides from any one of the world's main leagues. Try your hand at either manager, player or a combination of the two. Thus the game should appeal to both the management/strategy buffs and the arcade player.

tball



The traditional top-down view has been enhanced by adding a slight angle to show animation details



Getting the Manchester United licence was obviously a good move for Krisalis

World Cup Striker

Rage Software

Taking a peek into the distant future, Rage plan to release a sequel to Striker sometime near Christmas. Efforts have been made to make the game as realistic as possible, using animation from real footage.

A lot of work has gone into the computer intelligence aspect of the game, as a common complaint about Striker was that it became too easy to beat.

Empire Soccer Empire Software

This game will involve special team powers as well as the usual moves, such as Super Barge enabling you to knock down an opponent for up to ten seconds.

Other features include a full statistical game analysis at half time and Comical Cameo sequences for goals, bookings and the like. The game uses 256-colour graphics and 400 frames of arcade-style play.

Choose from one of the 24 national teams in this year's World Cup, each one having been studied to match the playing style and ability of the real squad, and guide them to World Cup success.

Five skill settings will ensure that the game will appeal to all, from the novice to the expert. Expect this one to hit our shelves around June.



Empire Soccer promises smooth scrolling graphics and clear sprites and ball

The management

If all this football arcade madness is already becoming too much, there are alternatives.

Management games are becoming increasingly popular with those who prefer a game that requires a bit of thought and strategy with their football. The Premier Manager duo and Championship Manager are among the most popular of this particular genre.

The idea behind them is to take on the role of team manager and lead your squad to success. Things such as keeping your ground, squad, and money under control become part of your job. In short, all the responsibilities of a manager become yours.

Even a platformer has taken up the football theme, in Krisalis's Soccer Kid, with a football-kicking sprite. The game was acclaimed for its brilliant graphics and unusual playability.

Alternatively, if you'd like a football game but don't want to bother with all the rules then try the sequel to Brutal Sports Football, called Brutal Sports Soccer – soon to be released.

While Brutal Sports Football was based on American Football, this release will centre loosely around British football, with the same idea behind it; of beating the living daylights out of your opponent.





Premier Manager 2 comes highly recommended. Taking on the role of manager, you will need to make decisions such as which new players to buy



Sensible Soccer
Renegade

This is a basic port-over from the original but the sound effects seem to have been enhanced to really create the all-important match atmosphere.

Playability remains as smooth and addictive as ever. The sprites do seem a little inferior to more recent games and lack the animation, but when gameplay is this good it perhaps isn't that essential and there are plenty of options to tailor the game to your needs.

John Barnes European Football
Buzz

Another basic port-over for the CD is John Barnes European Football, released on Krisalis's budget label, Buzz. It is set around the European Football Championships and contains advanced features such as intelligent defensive walls, aftertouch and action replays. The game runs at arcade speed and makes use of a stereo soundtrack.

To the future...

With all the leaps in graphics and sound appearing across the gaming genres, the question on most footy fans' lips is – what's the next generation of Sensible Soccers going to look like?

The Sega Saturn, to be released at the end of this year, could give a solid hint as to the direction the genre is moving in. Saturn Soccer is from the makers of the much-touted Virtua series (racing, fighters) and from the early preview shots glimpsed at the recent CES show, it looks like quite a stormer.

Featuring multiple imaginative views of the action and full polygon graphics, this is shaping up to be quite a title on the visuals side. Whether it can match the playability of the likes of Sensible Soccer is another question altogether.

Likewise, FIFA Soccer on the 3DO features panning, zooming and digitised players, producing breathtaking results, but as Steve Dunn, the programmer of Sierra Soccer, says: "The playability [of the next generation] could be fractionally better, but not desperately better."

Tim James of Krisalis is very much adamant about putting playability before graphical enhancements. He sees the next step as heading towards more individuality for the players – how well they run, kick and handle. These are techniques which they have already used in their Manchester United Premier League Champions, and he hopes that bringing more managerial skills to the game will produce a more rounded and varied experience.

If you shout at a player, you'll be able to see the results in the next match – he may well be better on pitch and move faster or, alternatively, sulk and not play to the best of his abilities.

Virtual reality is regarded by some as being the ultimate way forward, and very viable option for the future – could it be possible that a few years down the line we'll be able to slip a VR head unit on and take part in the ultimate football experience as we race around Wembley stadium with the roar of fans echoing in our ears?

The one important factor that has been present in many of the classics is sheer playability – this must be one of the most consistently addictive genres, providing the player with hours of fun and frustration.

Hopefully, the introduction of CD technology, faster processors and fancy capabilities won't detract from the previous quality of gameplay which has made the genre what it is today.

Amiga CDROM Software

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CM² Productions

From left to right: Stuart Atkinson (graphic artist); Gary Antcliffe (programmer and creator of SPAC mode); Gary "Jim" Mason (graphic artist and co-designer); Rolf Mohr (background artist, game designer). Not pictured: Martin Iveson (music); Jeremy Heath Smith (top honcho)

system analysis



Derby-based software house Core Design have a whole bundle of games lined up. Jonathan Maddock talks to the people behind Universe, just one release coming your way soon

Core Design are one of those companies who strive for quality and not quantity. A bad game from Core is a very rare occurrence. Over the next few months, you are going to be constantly bombarded by their products and I'm happy to report that, true to form, there isn't a bad game in their latest batch of releases.

One such game planned for a July 94 release is Universe. This graphic/text adventure has been created by the same development team who were responsible for the critically acclaimed Curse of Enchantia.

It's all about a journey into a futuristic parallel universe which contains a dimension of cosmic rivalry and warring alien races. The story begins as an ordinary lad called Boris Verne is visiting his eccentric Uncle George who is an inventor.

Boris, being the naive chap he is, sits in a strange pod machine and get transported to another dimension. That's where the adventure begins. System popped down to Derby to talk to Gary, Jim, Stu and Rolf, the team who developed Universe; this is what they had to say about life, the universe and the game that could become the one of best graphic adventures on the Amiga:

Q: What did you do before you started work at Core Design?

Gaz: I worked for another software company and did such games as Scooby & Scrappy Doo, Yogi Bear and numerous others [budget titles] that I can't be arsed to remember.

Jim: I spent three years in oblivion at university supposedly studying computer systems engineering.

Stu: I got up in the mornings, pretended to go to college but didn't, hung around outside in minus 90 degree temperatures and hung out with my girlfriend.

Rolf: Before Core Design, I had done several illustrations for book covers, worked for Games Workshop etc, all after doing an architecture degree.

Q: How did you come up with the idea for Universe?

Rolf: Universe was an idea that I originally had for a film script. That never went anywhere so I decided to turn it into a game.

Q: What makes Universe different from every other adventure? Are there any unique features?

Gaz: Yes there are some unique features; SPAC (Super Pre-Adjusted Colours) mode for one. SPAC mode allows the display of up to 256 colours on a normal Amiga 500.

Jim: Also, the music system is similar to LucasArts' IMuse in that it changes depending on the current mood of the game. We've never see that before on the Amiga.

Stu: The main character, Boris, also scales, which is pretty unusual on the Amiga. Boris was rotoscoped to get realistic basic moves (eight-directional walk cycles, pick up etc). Any other moves are hand-drawn and animated by us.

Q: Universe will appear on the Amiga CD32. What additional features can we expect to see?

Rolf: Due to the fact that the A500 version is already in 256 colours, there shouldn't be that much of a difference graphically. We will be using more shades though, as the A500 only has 16 shades per colour whereas the CD32 has 256.

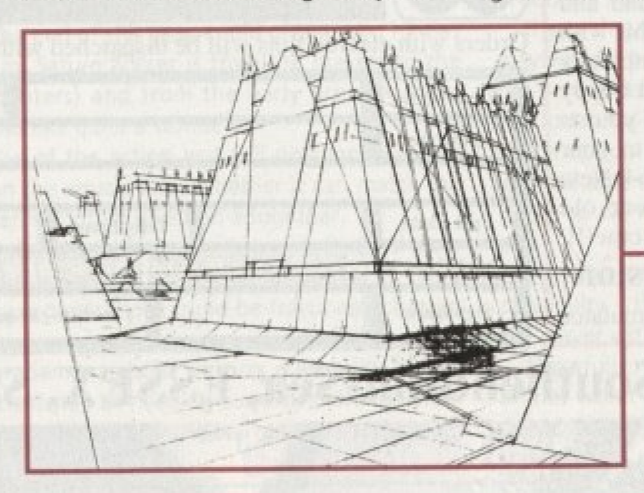
Jim: We're also looking into speech on the CD32 version, but we're not too sure about that at the moment.

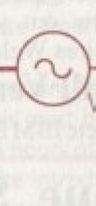
Gaz: Of course there will be the expected CD music rather than the four channel Amiga stuff.

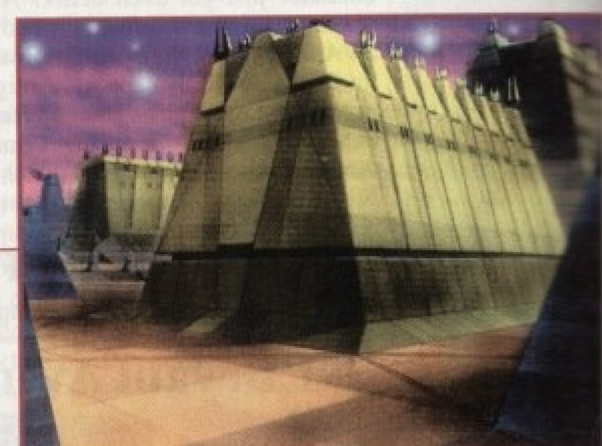
Q: What do you think of the new CD-based technology?

Stu: Which CD technology? The CD32 doesn't in our opinion live up to the hype.

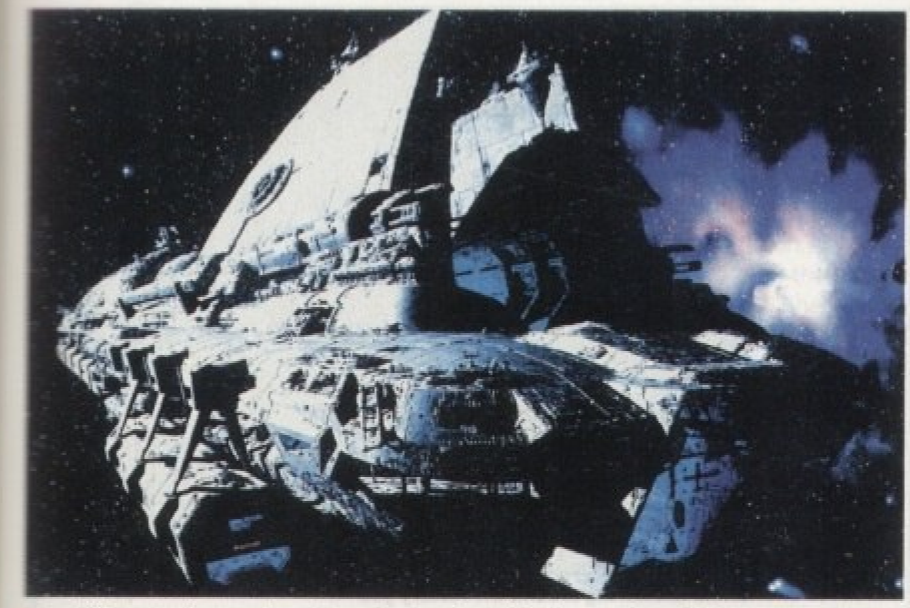
Better by







From draft sketch to finished artwork



One of the many impressive peices of artwork used in the creation of Universe

Jim: Yes, it's just a A1200 with a CD drive bolted on as an afterthought.
Gaz: It's the only CD drive I know of which can't actually fade music!
Rolf: But it does have the Planar chip in there... somewhere!
Gaz: It's just a pity it's not any use.
All: Yeah... It's really great.

Q: Explain the processes involved in designing a game (from simple sketches to finished product):

Rolf: We'll tell you when we find out.
Stu: There's not really a definitive way of designing a game. Everyone does it differently.
Jim: We start by having a meeting where everyone in the team sits around, drinks coffee and talks over ideas that they'd like to see in the game. We then work out which bits of the initial design are feasible.
Gaz: And then we do the business...
Stu: Rolf will start by roughly sketching out the general layout of the scenes before he starts to paint them. Once they're painted, they are scanned in using a flat-bed scanner and a PC and touched up if necessary.
Rolf: We then subject the nice picture to SPAC mode which converts the original scanned image so that the Amiga can display it in 256 colours.
Jim: This usually needs considerable touching up, but it's worth it in the end
Stu: We (Jim and myself) then do the background animations and sprites in the palette dictated to us by SPAC mode.
Gaz: Generally the process is a long one which would take up far too much space here to really go into any depth.

Q: Your previous adventure, Curse of Enchantia, used a icon control system. Universe will use a text system. What benefits do you get from this new system of control and how easy/difficult was it to implement?

Rolf: Conversations between characters in Universe is one benefit.
Jim: Yeah, it's not really possible to have a conversation using icons, is it?
Gaz: Benefits? It works!
Stu: I no longer have to draw stupid things like "pay respect to the dead" in a 24 by 24 pixel icon.

Q: Universe will incorporate some arcade sequences. This has been done before unsuccessfully in games like Operation Stealth and Indiana Jones. What will these sequences be like in Universe?

Jim: We are aware that previous adventures have suffered considerably due to the inclusion of arcade sequences so we've kept this in mind. Generally, adventure players don't want arcade pieces in their games so we've not dwelled upon them in Universe.
Gaz: The ones that are there are short and simple and should make an interesting break in the game.
Rolf: You won't be spending hours trying to get past them in other words.

Q: Finally, in not more than 20 words, tell our readers why they should run out to their local shopping emporium to buy Universe...

All: At this point, we'd like to sing a song: "Universe, Universe, Universe, it's better than bad, it's good!". Whoops, that's 21 words!

design



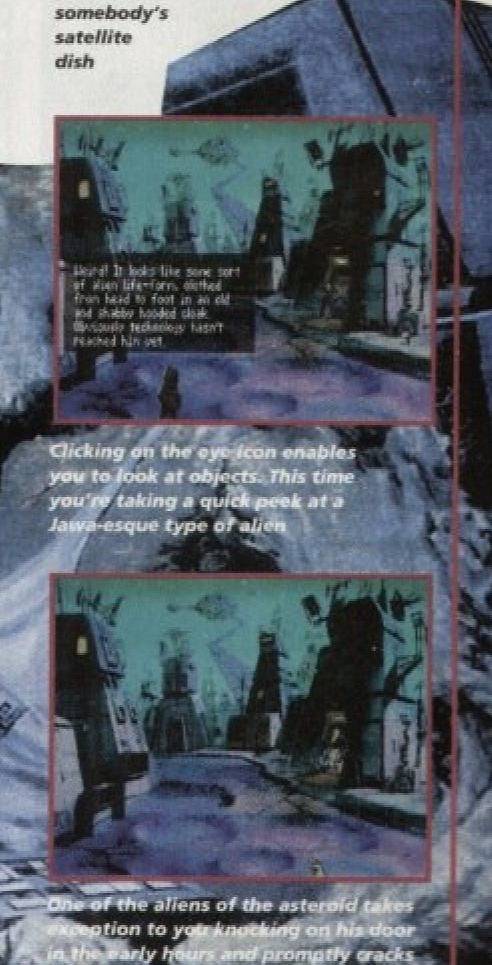
Boris starts the game completely lost on an asteroid, but perhaps that tower in the distance could be a way home



By clicking on the inventory icon you can get a detailed run-down on what objects you have



Wandering around the supposedly barren asteroid you find yourself in front of somebody's satellite dish



Clicking on the eye-icon enables you to look at objects. This time you're taking a quick peek at a Jawa-esque type of alien

One of the aliens of the asteroid takes exception to you knocking on his door in the early hours and promptly cracks you one in the face

INTRODUCTION

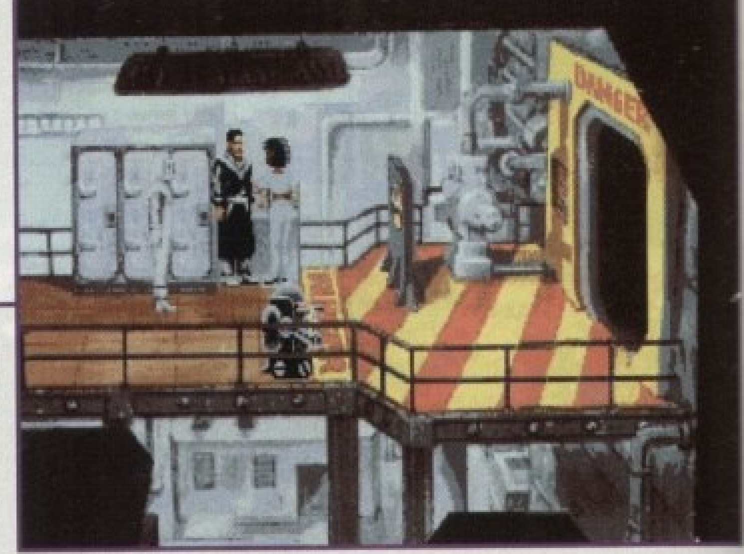
A few years ago I bought a graphic novel entitled Watchmen, which featured the art of Dave Gibbons and it quite literally took my breath away. If you've never read Watchmen then right after this review I urge you to go out and buy it and if you haven't got the cash, beg or steal yourself a copy.

Dave, who previously worked on popular weekly 2000AD, tried and failed to make a Watchmen game, but he still had the computer bug and has now joined up forces with Revolution Software, whose previous software credits include the highly acclaimed Lure of the Temptress, to work on Beneath a Steel Sky.

Two years in the making, Revolution Software have significantly enhanced their unique Virtual Theatre system and created a game that is six times bigger than Lure of the Temptress.

The Virtual Theatre system allows all the characters to realistically move about independently in their world. For instance, if you find a character in a certain room, don't expect them to be there when you return.

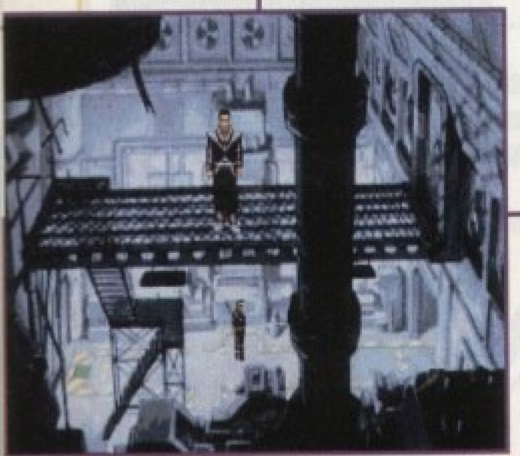
As with most games of this genre, the adventure is all controlled via the mouse and clicking on objects or characters will cause the hero of the game to interact with them.



While wandering around the factory you will find a friend in Anita. She will help you progress through Beneath a Steel Sky

GOLD AWARD

Beneath a Steel



The start of Foster's adventure and things are looking grim, although that pipe on the wall could open a few doors



Joey the robot is your constant companion and in times of strife you can call on him for some help and advice

Entering Reich's room you have a swift look around, but the only place worth investigating is under his pillow where he keeps his magazines. Ahem!

STORYLINE

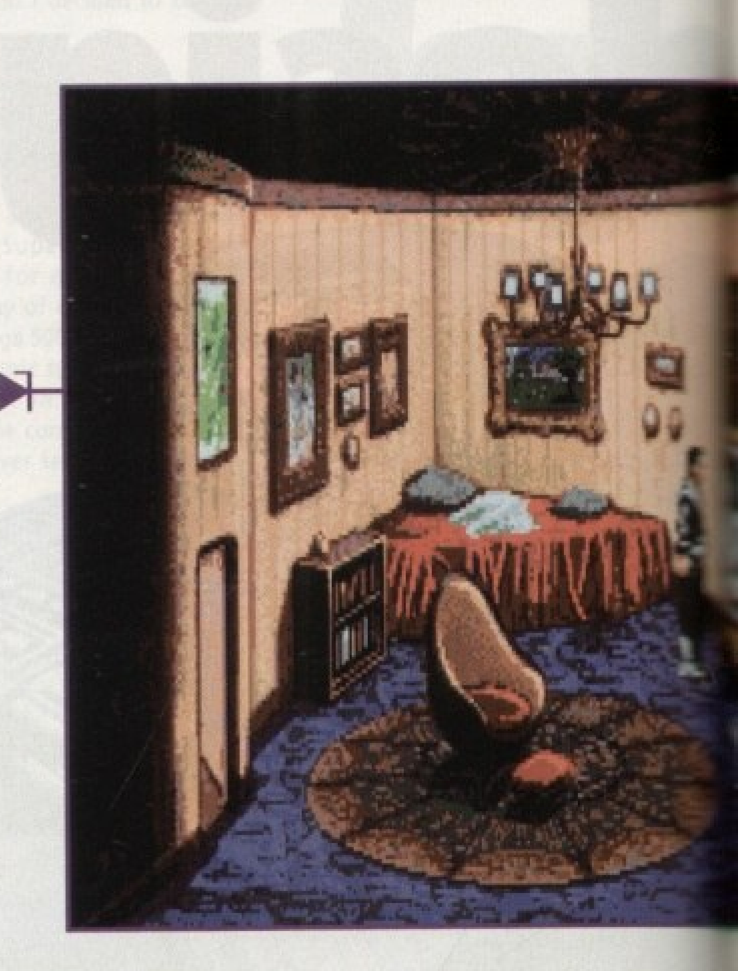
You take on the role of Robert Foster, who as a youngster crash-landed in a desolate place known only as the Gap. With his parents dead, Robert was taken in and fostered by Tribesmen.

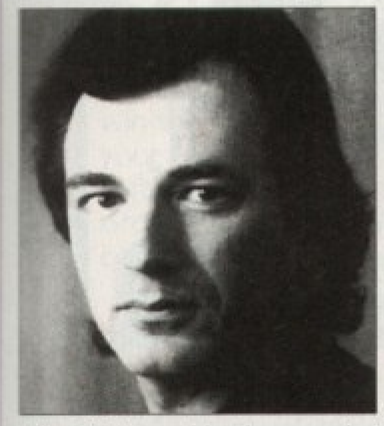
Treated as one of the tribe, Robert learned to survive by hunting and scavenging. As years passed he started to discover new talents such as building robots and one of them, Joey, became his constant companion.

Then one day the eldest tribesman had a premonition of the evil that was coming to the Gap. That evil was the security helicopter. After the Commander had threatened the old tribesman with death, Robert came out of hiding and was promptly abducted by brutal security forces and brought to a place called Union City.

His fate is in your hands as he talks to people and explores the area around him, in an attempt to discover why he was brought to the city.

Right at the start of the adventure you find that Foster has escaped from the wreck of the helicopter in which he was kidnapped. You must ensure that he eludes security in order to discover his past and his destiny.





ADDITIONAL INFO

Dave Gibbons began his comics career in 1973. A frequent contributor to the magazine 2000AD, he illustrated such renowned strips as Harlem Heroes, Dan Dare and Rogue Trooper for that publication.

Gibbons has also worked on the popular Doctor Who strip, and in 1982 he began his association with DC Comics, drawing the Green Lantern series.

His work with Alan Moore on Watchmen helped win him a Best Writer/Artist combination award at the 1987 Jack Kirby Comics Industry Awards ceremony.

Monthly magazine, Q, said Watchmen was "The most advanced comic yet, one which elevates the medium from the mere childish diversion to the level of an artform".



Although it doesn't happen very often there is a chance that you will kill Robert Foster and thus end your game. Clever people will, of course, have saved their game

Jonathan Maddock grabs his trusty mouse and clicks his way into a state of adventuring bliss, courtesy of Virgin and Revolution Software

Sky

SOUND

There isn't a lot to shout about on the sound front and is infact quite weak. The atmospheric introduction music is adequate enough, but you've heard it several times before. Actual in-game sound effects are few and far between. This is about the only disappointing thing about Beneath a Steel Sky. A nice touch of gentle music playing throughout wouldn't have gone a miss.

I know there are people out there who don't like their adventuring thought-processes disturbed by meddlesome tunes, but for those kind of people there is always the volume switch.

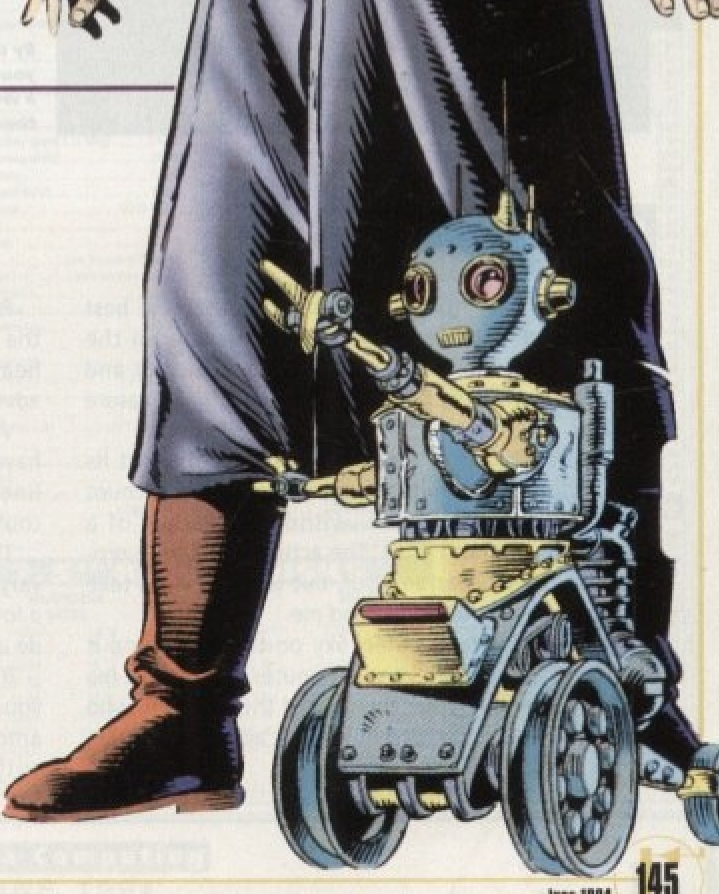
Some of the in-game sound effects are really bad, especially the alarm at the beginning of the story which sounds like a bad case of flatulence, and although it does cause much hilarity it isn't really an excuse for bad sound effects.

50%

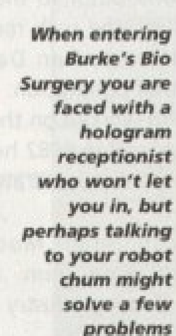
Publisher: Virgin
Developer: Revolution Software
Disks: 15
Price: 29.99
Genre: Adventure
hard disk install: yes + 1.5 Meg
Control System: Mouse
Supports: A500, A600, A1200
Recommended: 68000, 68020



What you thought was a dirty video (Pussies on Parade) actually turns out to be a rather harmless picture showing a few shots of some cats



GRAPHICS



Visually, Beneath a Steel Sky is just about as sexy as Amiga graphics get. I guess a lot of it is down to the amazing talents of Dave Gibbons who not only is responsible for designing part of the actual game and creating the background graphics, but also kindly provided Beneath a Steel Sky with a brilliant scene-setting 8-page comic book.

The game starts with a brief, but well-animated introduction of the security helicopter crashing with the hero escaping amidst a hail of bullets, but then you are plunged straight into the actual adventure.

Revolution's adventure features some exceptional character sprites and some jaw-droppingly good backgrounds and when compared to previous games of this genre it literally outshines them all.

The animation is smooth and fluid and you really get a sense that each sprite has its own character and personality. Even just small sections of Beneath a Steel Sky are worth mentioning.

For instance, if I told you there's a bit where a cat jumps off a bed, you wouldn't be that impressed, but it is so well animated that you actually feel like telling everyone about it.

I have tried, but failed to knock the graphics in the game simply because they are so damn perfect. I doff my cap to Dave Gibbons and the graphic artists that have obviously worked so hard on Beneath a Steel Sky.

90%



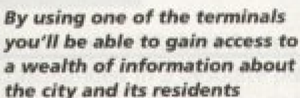
When entering Burke's Bio Surgery you are faced with a hologram receptionist who won't let you in, but perhaps talking to your robot chum might solve a few problems



The mad Doctor Burke who uses the gas cylinder for his own personal use. I for one would not let this man operate on me!



By using one of the terminals you'll be able to gain access to a wealth of information about the city and its residents



FLASHBACK

There are loads of previous adventures I could compare Beneath a Steel Sky to, in fact far too many to name here, but classics like The Secret of Monkey Island 2 spring to mind.

There are certain points in Revolution's graphic adventure where humour pops up and this is very reminiscent of the witticisms found in US Gold's swash-buckling Monkey Island 2.

One of the better adventures that you could compare it to is a previous release of Revolution Software, Lure of the Temptress.

Lure featured some luscious graphics , some good atmospheric sound effects and incorporated the then revolutionary Virtual Theatre system.

The story is all about a chap called Diermont and his mission to free the Turnvale Village from the evil clutches of Selena, a apprentice sorceress.

At the time the game received a walloping 92% and a Gamer Gold award. The reviewer at the time summed Lure up by saying "If you're the more patient type of gamer who wants a challenge that will give you months of enjoyment, look no further than Lure of the Temptress".

OPINION

Beneath a Steel Sky is just about one of the best graphic adventures I have played to date on the Amiga. Everything about it just oozes quality and over the last couple of weeks it's been a real pleasure to play.

Before I praise it anymore I should point out its few unfortunate faults. Firstly, it comes on 15 (count 'em!) disks and you will ,without a shadow of a doubt, need a hard drive. The actual installation process takes well over an hour, but why it should take this long is completely beyond me.

I played Beneath a Steel Sky on the A1200 and it kept crashing about every 15 minutes. It's not just me either because another member of the AC team, who was as deeply engrossed in Virgin's adventure as me, experienced the same problems.

Putting these faults, which do take the edge off the actual brilliance of the game, aside, I would heartily recommend Beneath a Steel Sky to any adventure fan. Why do I recommend it though?

Well, the graphics are good enough to marry and have children with, the gameplay and actual storyline are first-rate, it's easy to play and you just couldn't wish for a better adventure.

The actual puzzles contained within the game do vary from the obvious to the baffling, but you have a lot of fun trying to work them out and when you do a sense of achievement washes over you.

Beneath a Steel Sky is not aimed at the very young market though, because it does have a small amount of swearing and innuendo contained within it. Nothing that shocking, but I'd just thought I'd let you know.

Beneath a Steel Sky was just a whisker away from getting a Platinum award, but due to the amount of bugs I suffered I'm now a little bitter and I've consequently knocked the score down. No matter what software comes out, there is little excuse for letting bugs get into a game.

Revolution Software have surpassed the amazing Lure of the Temptress with their latest adventure and I congratulate them on making such a fine adventure game. If it doesn't go to the top of the software charts then I think there is simply no justice in this world.

85%

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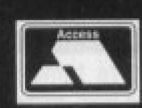
The Tipster Professional (uses the Racing Post) is available on the Amiga, Atari and all PC compatibles. A Windows™ version is available for £64.95 which includes the Dos version.

Tipster International (uses daily papers) is also available at the same price, this software is designed for users who are just beginning to use their computers to predict horse race results.

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The Blue and

Stevie Kennedy dons his uniform as the war gamer's favourite slaughter subject makes an appearance on the Amiga



INTRODUCTION

The American Civil War has long vied with the exploits of Napoleon and Wellington as the war gamer's favourite gaming period, and there have been a few mostly ill-fated attempts to bring the sweep of this continental struggle to the small screen over the years.

Impressions, whose games have in the past covered just about every other area of conflict, have entered the fray with a game aimed at those who enjoy marshalling lead figures around a tabletop, and those who prefer a more behind-the-lines strategic involvement.

Creating a playable computer game which mimics the movement of thousands of troops on a battlefield is notoriously difficult, and when this is paired with a strategic overview of a four-year war, the task becomes a little daunting. Can Impressions pull it off?



ADDITIONAL INFO

When the South began the bombardment of Fort Sumter, Charleston, in April 1861, they were taking the first armed steps in a war which was to last four years and cost the lives of 617,000 Americans, two-thirds of whom were destined to die in the charnel houses that were the hospitals of the time.

Despite the initial successes of the Confederate forces, their early military superiority, dashing tactics (particularly in the Shenandoah valley under Jackson and Longstreet), and fanatical commitment could only delay the day when northern industrial and numerical superiority ground them into the dust.

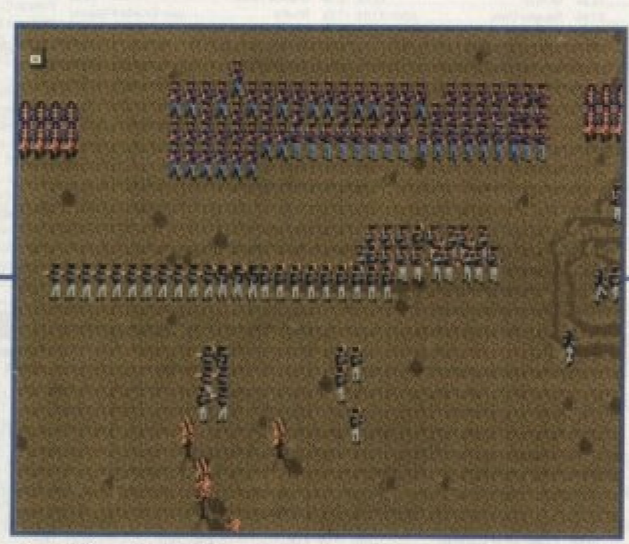
Bull Run, where Stonewall Jackson earned his nickname, was to be followed by a succession of victories and defeats until the turning point of the war at Gettysburg.

There the Confederate invasion of Pennsylvania died, along with 23,000 Union troops and 28,000 Confederates, and Robert E Lee had suffered his first defeat.

The psychological effect of the battle on both sides was immense, and the North gradually pushed the Rebs back until, on April 9, 1865, Lee signed the terms of his surrender to his old rival Ulysses S Grant in the courthouse of a tiny town called Appomattox.

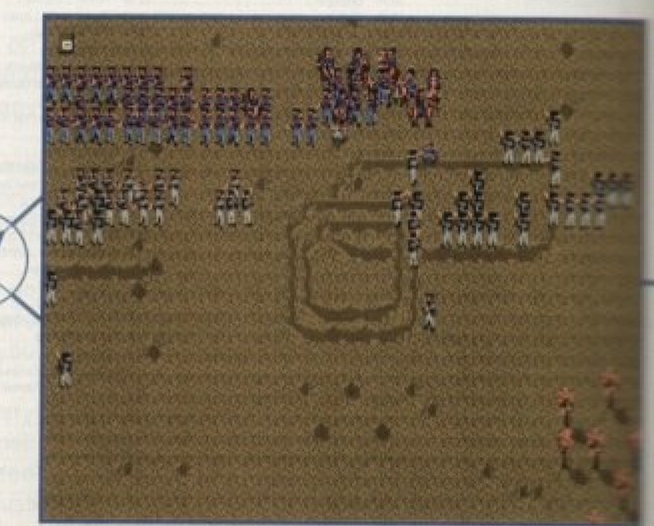
> There is nothing left for me to do but go and see General Grant, and I would rather die a thousand deaths
>
> *General Robert E Lee just before his surrender to Grant*

It had been the bloodiest war in US history, more costly even than World War 2 was to prove.





The battle of Fredericksburg begins with a tentative approach...



...but the scrap is soon raging as hot as you like

GRAPHICS

The game's graphics vary in quality and consistency depending upon which screen is being viewed, so while the static information screens and the strategic maps are quite well drawn, the representation of battles is poor and based entirely on the existing Impressions battle system which hasn't changed much for a couple of years.

To the tabletop fanatic used to pushing immaculately modelled and painted figures across intricately detailed fake countryside, the battle scenes will be a particular disappointment. Soldiers are drawn in blocky lo-res and move jerkily across the screen, and the battlefields themselves are about as basic as one can get.

On the other hand, information screens showing historical events from the war itself are easy on the eye, and the map of North America is up to the task.

Graphics during the manoeuvre and strategic phases of the game don't impress in an artistic sense, but they are good enough and the various control options are presented clearly and neatly.

More realistic battle scenes would have given The Blue and the Gray a much better visual appeal, but as this is a more cerebral game than most, it is not as damaging a weakness as it might otherwise have been.

50%

When to recruit new divisions is the most important strategic decision

Publisher: Impressions
Developer: In-house
Disks: 2
Price: £34.99
Genre: War game
Hard disk install: Yes
Control system: Mouse
Supports: A500/A600/A1200/A4000
Recommended: 1Mb RAM, 68000 upwards

SOUND

Without becoming too gruesome, the game does make an attempt at battle noises, with musket volleys, neighing horses, and booming cannons at the appropriate moment, but there's a distinct lack of other touches.

I would have liked a Rebel Yell when the Confederates charge (which, true to life, they often do in this game), and some sort of general battle hubbub, but overall the sound isn't too bad. Music is OK as far as it goes, which isn't far, and there are a couple of attempts at the battle hymns of the time.

50%

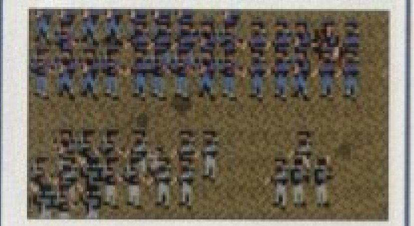
SIMULATION

Split into strategic and tactical sections, the game's simulation of the Civil War is by no means perfect, but it is good enough given the limitations of a two-disk package and a four-year continental war.

Strategy is probably the weakest section, and players are limited in what they can do to affect the outcome of the war. Using train and ship transports properly, destroying railway lines, and judging where and when to commit reserves or raise new divisions are the only real strategic decisions.

As the north's victory was so dependent upon its numerical and economic strength aided by a naval blockade, some sort of economic dimension to the game would have helped. However, as the war itself consisted mostly of attempts to locate and destroy as many enemy troops as possible, the lack of more subtle elements is acceptable.

In battle mode, poor graphics don't help much, but the battle sys-



tem itself is well worked out. Troops can be grouped into large formations or used as individual units, and they can be told to form lines two deep, assume skirmishing formation, or even squares.

Each unit has its own firepower, attack, and defence ratings as well as troop quality and morale, all of which have a direct result on gameplay, and different weapons can have an effect too.

Union troops, for example, have the Sharps and Enfield carbines whereas Confederates use mostly older muskets, and cavalry can be told to use either sabres for maximum effect in charges, or carbines for more static manoeuvres.

In play, moving troops around can be a real pain, and the control system during battles is rather clunky at times. However, so long as the battle speed is kept down (there are ten settings), tabletop players should feel at home with most elements.

If you can see past the graphics and have the patience to play a full battle, then there is a good war gaming system trying to break free of the game design, and fans of the genre should find enough depth to keep them going.

65%

the Gray

OPINION **60%**

Sixty per cent might seem a generous score for a game which falls over in the graphics side and has a few simulation flaws, but as Impressions are aiming at the war gaming fan and as the battle system is basically sound, The Blue and the Grey comes over as a reasonable attempt at an extensive and unwieldy subject.

The superb manuals help a great deal, and as there are good campaign and battle tutorials the game should be approachable by non-war gamers as well as the experienced weekend general.

To aid the beginner, there's also an excellent 180-page history of the Civil War which covers the material in some depth and in a very readable style.

It takes some time and a lot of patience to get to grips with this game, particularly as the early battles are made more infuriating by the difficult mouse control when scrolling across the battlefield.

After a few practice battles, though (in one of which my three division Union army was routed by a single under-strength Rebel infantry division) the pieces start to fall into place and the depth of the battle system starts to show.

Fighting out a huge affair, such as the first battle of Bull Run, can take a very long time, because when there are 30,000 soldiers on each side you have to knock speed right down and scroll back and forward like a mad thing to keep track of what's going on.

Add the fog of war option and unit re-supply and things become even trickier and time-consuming.

On the whole, though, the war gaming fan will find enough in this game to warrant buying it, particularly as the tabletop variety takes even longer to organise and play. Other gamers will scratch their chins in a thoughtful manner and give it a wide berth, but that's only to be expected.

INTRODUCTION

Psygnosis are not largely regarded for their efforts in the adventure game market. Aside from the excellent Hired Guns (DMA Design) and the rather linear Innocent until Caught, they've produced little of interest for lovers of this genre.

Now, with the help of Morbid Visions, Psygnosis are re-entering the RPG market with the highly stylised Perihelion.





Perihelion opens with a very atmospheric intro sequence





Perihelion

Another foray into doom, gloom and the ultimate demise of the human race? As ungodly beings emanate from the void, Simon Clays casts a glance at the world of Perihelion



The character selection screen determines your team

SOUND

Both the introduction and in-game music have obviously been given some thought. How many times in the software world has a game had a graphical style that didn't quite match the feel of the music? Countless.

But, not so in Perihelion. The curious graphical images complement perfectly the whistle of wind rushing through a building and the deep nasal reverb of the synthesizer.

70%





Players are viewed as a silver metallic ball as they move to different locations using the map

OPINION 60%

Perihelion is an extremely interesting departure from the normal RPG style Dungeons & Dragons title. While it's still largely a first-person 3D title, the designers have attempted to tread a different path on many other aspects of the game.

For instance, many titles of this genre have a very similar style for representing spells and spellcasting. They are either awarded on graduating your character's rank, found lying around in corners of arcane buildings, or bought from dodgy magicians.

In Perihelion the designers have opted for a similar technique as Dungeon Master, with the acolyte in question having to construct the spell from runic sym-

STORYLINE

As the name suggests, Perihelion is a solar-centric culture, leftovers from an ancient, technocratic society which all but vanished in the aftermath of a nuclear holocaust.

The principle relic, as a reminder of that era, is a ruined metropolis named MidLight. Our tale begins on this strange futuristic world of Perihelion, where the society is constructed of mutants and surgical and genetically enhanced groups of humanoids.

One such character is Finian, a Bionocron, and student of psionics. It's during his pilgrimage to the Psionic Training Institute that the plot unfolds.

As part of his mental separation of mind and body, he must approach the school through the desert. After a hazardous passage, Finian finds himself in his simple room enduring a preparatory state of meditation before he faces the time of the Mannis.

As he meditates deeper, putting aside the physical pain he has faced through the desert, Finian has a vision. He is out in the desert again, only this time he's not alone.

Finian feels a force, an entity so powerful it totally engulfs his soul. He can only gaze in horror as this great evil moves about him, eventually yanking him high into the air.

Suddenly, the entity relinquishes its grip on and he spirals towards the yellow sand below him. As the dusty void immerses him, he hears a voice, a foreboding, malevolent boom that tells him that the time has come.

The story is relayed back to the head of the institute, who having called a meeting of the Council, informs them that he senses danger, and that their leader Rex Helion must know of these events.

As a response to Finian's prophecy, Rex Helion orders that Project Awakening must be initiated, the premise of which is to safeguard against this unborn evil, thus ensuring the future of Perihelion.

So, there they stood. Six unborn souls ready to do battle with a malignant force that has itself yet to be born. To Rex Helion, Emperor of Perihelion it sounded pure folly, but how many times have the psionics been right before?

GRAPHICS

The style of Perihelion lends itself to a very traditional sci-fi feel. Many of the themes of cyberpunk societies with neural networking and genetically manufactured humanoids are central to the core of the title. These images have been very well implemented, especially the head-shots of the six genetic warriors you control during play.

The intro sequence too has been well handled. It blends moody futuristic city landscapes with some excellent snippets of animation, and works to great effect.

Though play is a montage of styles, it's comprised mainly of 3D first person perspective. This again, is highly stylised, and reminded me of a downtown Mega City 1 from Judge Dredd.

Its only let down is the repetition of locations. As you wander around the deserted ruins of cities, turning one corner or looking at a building entrance soon leaves you feeling as though you've inherited some of the aforementioned psionic powers of precognition.

Still, on the whole Perihelion looks the part. One can tell that some trouble has gone into the design, arting and feel of every screen that the user interacts with.

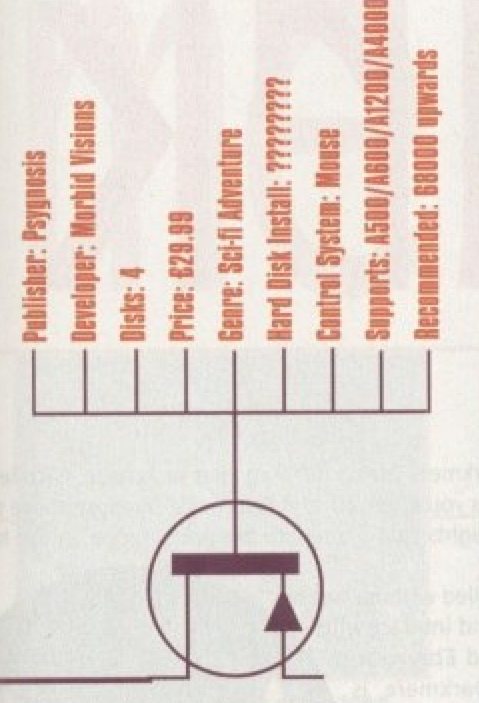
To the designers credit, much of the effort and polish that have gone into this aspect rubs off on the user's enthusiasm and make it just a touch more pleasant to use.

68%





The equipment inventory displays all your hi-tech kit that's available





Use the runic symbols to create psi-spells

ADDITIONAL INFO

Many of the characters in the game have undergone cybernetic surgery. The term cybernetic is derived from the Greek *kubernan*, "to steer".

It's the science concerned with how systems organise, regulate, and reproduce themselves, and also how they evolve and learn.

In the laboratory, inanimate objects are created that behave like living systems Applications range from the creation of electronic artificial limbs to the running of a fully automated factory where decision-making machines operate up to management level.

Cybernetics was founded and named in 1947 by US mathematician Norbert Wiener, originally the study of control systems using feedback to produce automatic processes.

The idea of cybernetics became that popular that TV series were spawned, the most popular being that irrepressible man in the red tracksuit Steve Austin, none other than the Six Million Dollar Man.

Through the eighties ideas were expanded, and with special effects technology vastly improved, films like James Cameron's Terminator were born.



bols. The computer network that your mutated characters can log on to and access, is also a nice extension of concurrent themes.

Not only does it feel right that your characters should have the technological insight to be able to perform such a task, but its also relevant to the completion of the story.

The only aspect of Perihelion that let it down slightly was the combat. It's a completely understandable notion to take the user to a separate screen to commence battle; it grants the opportunity to make tactical decisions, aim and effect repairs. But it's where, if a computer game can ever manage it, the fantasy of being real is lost.

However, while it's a little samey in places, Perihelion is a very competent adventure, and I look forward to the next offering from this development team.

INTRODUCTION

In development for the best part of three years, Darkmere is the first in a line of RPG-style titles from Derby-based Core Design. Due to the time it took to complete, Darkstone (the sequel) will follow very shortly after its older brother.




Little things like swinging signposts and flickering lamps give Darkmere an atmospheric edge

Dark



SOUND 68%

During play, Darkmere concentrates its efforts on effects, and uses mood music during loading sequences. The sounds effects within each level are crisp and amplify the mood of the play to great effect.

Whether it be the grunt of an angry orc, or the howl of wind through the trees in the forest, they're all extremely well executed.

FLASHBACK

Classic isometric action, Darkmere is best compared with titles like Cadaver (if anyone remembers it), and very recently Gremlin's Legacy of Sorasil (*Amiga Computing* No 73, Silver Award winner).

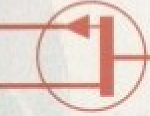


Be prepared to meet a whole host of arcane foes



Even a hardy adventurer needs refreshment





A joystick-driven menu system makes an adventurers' life extremely easy

GRAPHICS 79%

Consisting of three different levels, Darkmere uses a richly stylised technique. Each lev[el] is brimming with detail. For example, as you approach the tavern the signpost above the door is swinging in the wind and the lights that illuminate the paths flicker in the light as a breeze passes.

The landscape is also extremely detailed with masses of graphical objects to examine, search and interact with. The animation of your muscle-bound Ebryn, and indeed all of the characters within Darkmere, is extremely well executed. The character sprites are fairly large and move and fight extremely smoothly.

As you journey around the many varied locations you'll encounter many little extra animations that, although unrelated to the plot, add that extra dimension of realism.

For instance, as you make your way around the town you'll encounter rats, and during a forage through the forest, rabbits hop by.

Darkmere is probably the most detailed, isometric title ever to emerge for this genre. The graphics are extremely well suited and are cleverly crafted to give a very atmospheric feel.

Those extra little touches really show off the graphical prowess of Darkmere

STORYLINE

Set in times of olde, Darkmere is a sad tale of unrequited love. Its plot follows the fortunes of King Gildorn and his son Ebryn. As a young man, Gildorn killed an evil dragon, but was ousted from his homeland for interfering in human destiny

Back in his own land, Gildorn was proclaimed King and a time of great prosperity and order began. Sometime later a young female elf was found wandering the outskirts of the surrounding forest.

Remembering nothing but her name, Berengaria was given shelter by the King. Over the following months, King Gildorn grew closer to Berengaria, eventually falling in love with her.

The romance blossomed and a wedding soon followed. Glad tidings continued with the news that Berengaria was pregnant, and following tradition, Berengaria disappeared into the forest to give birth.

Time passed, and when the queen did not reappear, Gildorn became anxious and decided to go searching for her. For days he rode, then in despair he came across a leafy glade and found a new born child, his son.

Years passed and the son grew stronger, but the queen never returned. The King grew more and more melancholy as still she didn't return. Instead he took to gazing into his crystal, staring for hours and hours upon time in a vain search for his beloved Berengaria.

The more he gazed, the more the land became a magnet for evil. The orcs returned, thieves and cut-throats every one of them. They ravaged the land and went undetected by the King as he withdrew further into the crystal.

Greater evils were rumoured to be spreading around the surrounding lands and forest. Eventually Ebryn approached his distressed father and told him he was going to restore the kingdom to its former glory.

Agreeing that his sorrow has caused neglect, Gildorn tells Ebryn to find his old friend, Malthar the Mage. To aid Ebryn, Gildorn gives him his Elven Blade that is bestowed with Elven power, and a crystal that will allow Ebryn to call for help from him.

With that Ebryn leaves the castle and sets off to uncover the malodorous evil that curses the land.

GOLD AWARD

Fit to die for a cause? Ready to take on an army of darkness? Sharpen your blade and enter the domain of the Darkmere

mere

- Publisher: Core Design
- Developer: Arcane
- Disks: 4
- Price: £29.99
- Genre: Adventure
- Hard disk install: No
- Control system: Joystick
- Supports: A500/A600/A1200/A4000
- Recommended: 68000

ADDITIONAL INFO



Questing for good has been a talent the Anglo Saxons have relished in for many centuries. Perhaps our most famous religious liberator is Richard I (the Lion-heart). King of England from 1189, he spent all but six months of his reign abroad fighting for Christianity in the Middle East.

Richard and his knights believed that Saladin and his Muslim followers were in dire need of religious instruction through force. This is regardless of the fact that the Muslims tolerated gentiles, and lived side by side until the Christian invasion.

In the third crusade of 1191-92, Richard won victories at Cyprus, Acre, and Arsuf, but failed to recover Jerusalem from Saladin.

Saladin was sultan of Egypt, and born of Kurdish blood. He was renown for his knightly courtesy, and made peace with Richard in 1192.

Following this, Richard returned home to claim his throne from his brother John. Unhappy with peace, Richard looked closer to home and duly went to war with the French. In 1199 he died fighting in France.



After the hustle and bustle of the town, the next level takes you into the forest



On your way through the forest your path is blocked by a group of standing stones



Hiding beneath a pile of pile of rocks, the undead strike

OPINION 80%

This must surely rate as one of the best 3D isometric adventures ever to appear on the Amiga. It possesses a haunting style that is completely unique, and seldom achieved in many computer titles.

Character interaction is extremely simple to grasp, and the menu system which helps you negotiate your character through a seemingly endless environment is the essence of simplicity to use.

However, by far the most impressive facet of Darkmere is the graphics. They pay such attention to detail and create such a mood that it gives the adventure an immediate head-start over everything else it competes against.

If I had a criticism – and it's only a minor one – it's that the majority of battles that you engage in are exactly the same and don't require any particular skill to win. For example, whenever you fight against one of the abundant supply of orcs, you just hold your Fire button down, point the joystick into one of the attack positions, and the stupid orc just keeps walking into you until it spontaneously combusts.

Nevertheless, Darkmere is a pretty classy title. It's contained in a huge playing area (be prepared to map), has interesting and very moody graphics, and contains objectives and puzzles that will hold your attention for a good while.

O

INTRODUCTION

Overhead shoot-'em-ups have quite a heritage in computer games history. Starting with the fiendishly addictive Robotron, a genre was created and continued down the years with the likes of Gauntlet, Commando and Smash TV. The latter title received some press coverage over the amount of blood spilled with each killing and now, with Total Carnage, this tradition continues.

First came Robotron, then Smash TV, its violent sequel. Now, from Ice, comes a game with blood and bikinis – Total Carnage, a conversion of the Williams coin-op.

Adam Phillips reviews

Total



Various vehicled enemies are met at frequent points through out the game

STORYLINE

Out of nowhere came the power-mad General Akhboob who is as mentally balanced as Jack Nicholson in The Shining. While the latter was restricted to a single hotel and a fire axe, unfortunately the former has access to an arsenal of missiles and the entire world.

He has managed to create an army of mutants from radioactive waste produced at his nuclear generator. With his endless supply of disposable creatures and hostages, the General is ready to take on the globe and claim it as his own...

Only two men are brave, strong and simple-minded enough to even consider taking on the General at his own game – Captain Carnage and Major Mayhem, the Doomsday Squad.

The simple directive is to enter the complex, rescue hostages, disable Akhboob's forces, get inside his stronghold and go after the big man himself.

ADDITIONAL INFO

Violence has always sold games. From the early days of IK+, Barbarian and Moonstone, to the recent Mortal Kombat featuring spinal columns being ripped out of opponents, it's clear that blood-letting is a money spinner.

Total Carnage comes from the makers of Smash TV, a game which included multiple bloody deaths in a glamorised scenario. While the argument rages between software companies and parental/teaching groups to find out what kind of effect this all has on the younger generation, plans have already been mobilised by ELSPA (European Leisure Software Publishers' Association) to introduce a voluntary ratings system to guide the parent on the most suitable purchase for their youngster.

Total Carnage is not a title to be that concerned about – while the enemy may explode in a shower of blood, there are no screams of pain or burning corpses as found in such titles as Syndicate or Mortal Kombat and the gore is very much in the comical sense, especially with the cartoonised and rough-looking graphics.


Gun turrets cause short-lived problems... find the best vantage point and blow them away



FLASHBACK

If you're a shoot-'em-up fan and are after two-player games that pump the adrenaline and pack a challenge, then side-step Total Carnage and go for Chaos Engine, Alien Breed 2 or Llamatron, a PD title by Jeff Minter. The latter features excellent sampled sound, crude early 80s style graphics, but superior gameplay and with power-ups and heart pumping addictiveness, it's one of the best, cheapest and most absorbing overhead blast fests available for your machine.

Carnage

- Publisher: ICE
- Developer: In-house
- Disks: 3
- Price: £29.99
- Genre: Shoot-'em-up
- Hard disk install: Yes
- Control system: Joystick/keyboard
- Supports: A1200
- Recommended: 68020 only with 2Mb of RAM

GRAPHICS

The overhead viewing angle is, in most cases, an effective one and Total Carnage is no different. The largest problem with the presentation is that the graphics of the sprites and the backdrops simply look worn and crude compared to the likes of Chaos Engine and Alien Breed 2 which were released a few months ago.

The characters' legs have a remarkable perspective where it seems they shrink from the pelvis down into feet that take size 0 shoes. While it is appreciated that the graphic artist was simply trying to achieve a realistic look for the overhead angle, it simply doesn't work.

The animation is fair on the whole with the relatively bloody deaths of mutant soldiers as they explode on meeting a bullet. The scrolling is slow and fixed – when the game wants you to move, you move and if it doesn't, you stay where you are or risk walking face first into a homicidal axe-wielding maniac.

Another regular difficulty is moving your way to the top of the screen and having to wait for the slow scrolling to catch up. And like much enhanced software, it's hard to see why this is specifically an A1200 version.

47%

SOUND

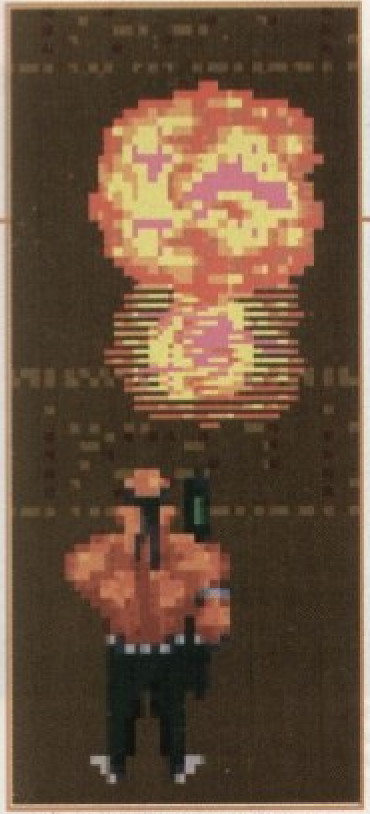
With this kind of licence, the sound is usually a clash of music, screams and other high pitched, audience-grabbing aural effects.

Surprisingly, Total Carnage is a little restrained in this department – there is no music over the intro and option screens and during the game itself, gunfire and the impact of bullets make up the main bulk of the sound. These admittedly are solid effects and add impact to the gameplay.

Speech is also a welcome inclusion with a voice crying out "total carnage" as a wealth of mutants waddle on to the screen towards you. Other samples include the hostages who cry for your help, and when retrieved thank you for your time and effort.

Sadly enough, the only women to appear in the game are wearing bikinis with a ball and chain who flatter your ego every time you rescue one of them by proclaiming that you are a hero in a bimbo voice. Equal rights have yet to enter the gaming arena...

60%



The flame thrower is a formidable weapon wiping out mutants with a single, flickering touch



General Akhboob makes a party political broadcast



One of the game's most frustrating and annoying moments is on Level Three when a gang of axe-wielding maniacs come at you from all directions... expect to lose plenty of lives here



All male hostages are fully dressed – all female hostages are in skimpy bikinis... why?

OPINION **50%**

Shoot-'em-ups have become some of the most tired releases in software. With the steady increase of technology and companies opting out of fresh, original and playable ideas to stick firmly with the easy road of licences, customer's wallets are beginning to suffer more and more.

Total Carnage is a typical example of a reasonable conversion of an average coin-op that will sell simply because of the name and hype attached to it. If you enjoyed the original then you'll glean a certain amount of satisfaction from this.

Indeed, the proceedings can be relatively involving, especially in two-player mode, and with 20 battle zones to wage war through, there is certainly a hefty challenge to be met.

The numerous power-ups for weaponry and air strikes also add incentive to see how much damage you can cause in the shortest amount of time.

At the end of a wage-earning day, though, and after reaching into your pocket and fishing out £30, Total Carnage is not really worth the money.

The action, while constant, is never really adrenalin pumping and has more in common with a hard slog with the Fire button than exciting and spontaneous play.

The graphics also detract appeal from the overall package, leaving Total Carnage with averageness as its main quality, and consumers with a dry and tepid emptiness in their wallets.

INTRODUCTION

Not content with the success of their recent war-'em-up Cannon Fodder, Virgin seem to be continuing on the warmongering path with this, their latest offering, Apocalypse

Borrowing many of its ideas and looks from the film *Apocalypse Now*, the game suggests the scenario of the Vietnam war.

Political correctness is abandoned as you take control of your helicopter, massacre enemy soldiers with a vast array of weapons and destroy their bases and artillery.

The game was the original idea of development team Strangeways, who disbanded the project leaving it in the capable hands of Miracle Games.

Their aim was to create a product for the Amiga that was worthy of an arcade machine. And now after what seems like an eternity the title is finally here. But was it worth the wait?

Tina Hackett dodges the napalm as she reports from Virgin's latest war zone, Apocalypse



Apoca



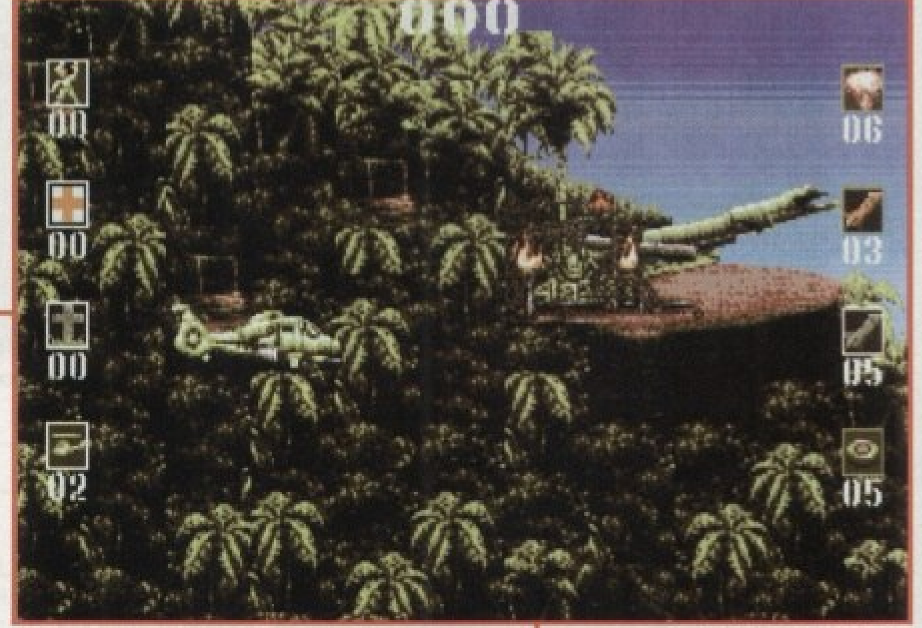
The patriotism of war is apparent. US flags adorn the base camps

> Mankind must put an end to war or war will put an end to mankind.
>
> ***John F Kennedy to United Nations General Assembly, September 25, 1961***

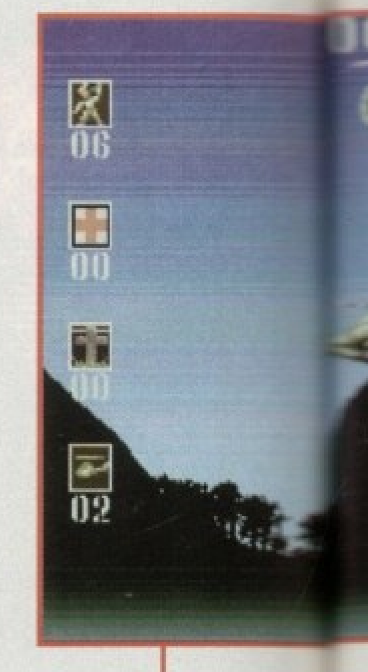
SOUND

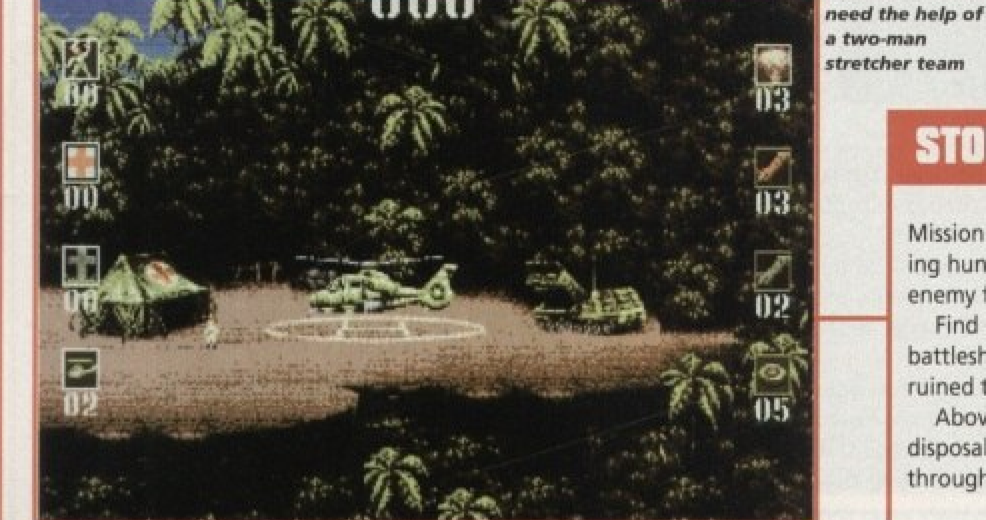
A great deal of the atmosphere has been conjured through the excellent sonics resulting in an almost chilling realism. From small details like the background jungle effects to the many different weapon noises, they all combine to portray an authentic war zone atmosphere. A vital factor in a successful shoot-'em-up is how accurate the weaponry sounds. Apocalypse creates this well.

67%



Rockets are needed to destroy enemy armaments such as this howitzer





Injured POWs will need the help of a two-man stretcher team

STORYLINE

Mission Apocalypse. Rebel forces have invaded the insignificant island of Majipoor taking hundreds of prisoners. Chosen from one of the Elite, it is your mission to destroy the enemy forces and rescue as many prisoners of war as possible.

Find the five key enemy bases situated in the dense jungle, attempt to blow up the battleship docked somewhere on the island and rescue your best buddy being held in a ruined temple in the heart of the jungle.

Above all, rescue captured scientists and military experts. A medical team is at your disposal. Use your piloting skills and the multitude of weapons available to you to get through this arduous task.





alypse

- Publisher: Virgin
- Developer: Miracle Games
- Disks: 3
- Price: £25.99
- Genre: helicopter Shoot-'em-up
- Hard disk install: No
- Control system: Joystick/keyboard
- Supports: A500, A600, A1200.
- Recommended: 68000 upwards

ADDITIONAL INFO

However intentional it was, the game can be closely related to the Vietnam war and so a title of this nature will inevitably raise questions on moral implications.

As the conflict was so controversial in the first place and comparatively recent, the game could cause offence. More so perhaps across the Atlantic than here, but even so it is perhaps worth considering the inspiration behind the game.

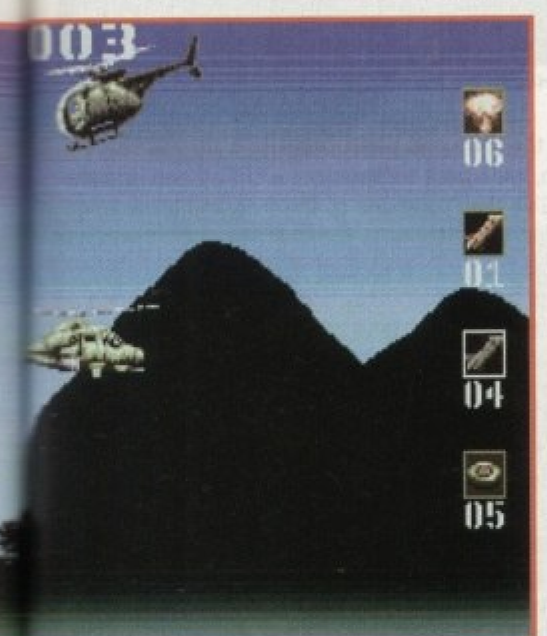
The routes of the conflict can be traced back to 1954, to the Geneva Convention when Vietnam was split into the Communist North and the Pro-Western South, right up until 1975. It was later known as "America's longest and most unpopular war".

For the first time the full horrors of war came under the scrutiny of the general public via the new medium of television. Anti-war protests broke out, some resulting in outbreaks of violence.

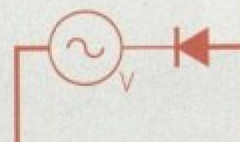
One such protest took place on October 15, 1969. This was the Vietnam Moratorium, and was the biggest anti-war demonstration ever organised in America

The war resulted in the loss of 200,000 South Vietnamese soldiers, one million North Vietnamese soldiers and 500,000 civilians. Losses were also high on the American side with 56,555 US soldiers killed between 1961-75, a fifth by their own men.

For instance, in August 1966 20 US soldiers died when US planes accidentally napalmed their own troops. Neutral Cambodia also suffered, estimating one million killed or wounded by US bombings.



The enemy are ruthless but homing missiles can lock on to moving targets



AMIGA BRONZE AWARD



GRAPHICS

Apocalypse is a multi-directional parallax scroller which makes for a technically stunning game. The backgrounds update at the same rate as the helicopter flies giving a convincing feeling of flying over the terrain.

Jungle settings have been cleverly used to recreate the terrain almost to the extent of looking like a scene from the aforementioned *Apocalypse Now*. The immense amount of foreground and background detail make Apocalypse astoundingly authentic.

However, the multi-layered backdrops and different levels of platforms used causes problems, especially when gameplay becomes hectic.

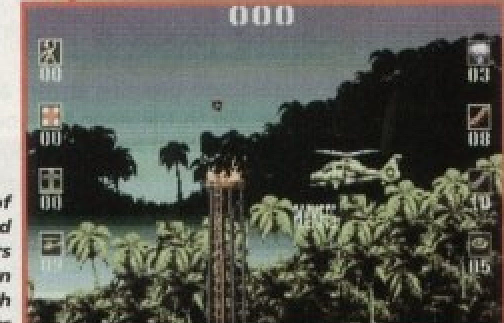
One moment's lack in concentration and you find yourself exploding into the ground as it is sometimes difficult to make out which is merely foreground detail and which is a landing platform.

Sprites are well-animated and despite their size show a great amount of detail, displaying all the gory effects of explosions.

75%



Enemy soldiers are sometimes armed with rocket launchers, other times with high velocity machine guns



Beware of armed soldiers stationed in watch towers

OPINION **66%**

As far as being a highly realistic war game goes, Apocalypse looks and sounds the business, evoking a powerful image of war. But it does verge on the excessively difficult side, and although this provides longevity, the game becomes exceedingly frustrating.

It is also let down by the fiddly control system, and although the helicopter is easy to fly, the Fire button serves the same function for both weapons and changing direction resulting in firing accidentally – sometimes at your own men.

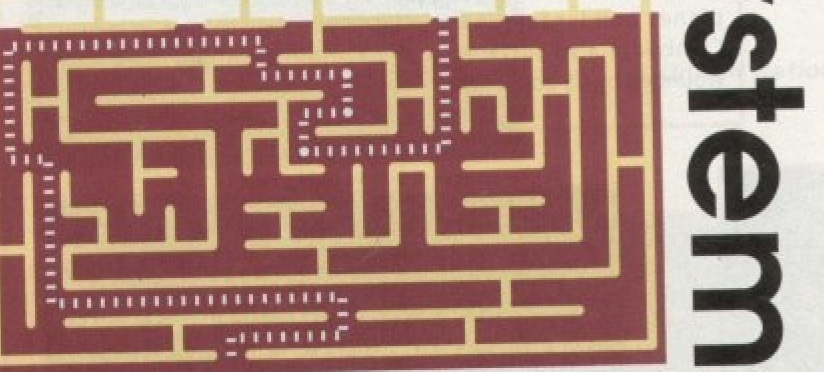
More depth in the gameplay, rather than just an advanced shoot-'em-up, would have benefited the game, and a save game option would have removed some of the frustration.

However it is graphically brilliant and the realistic, sampled sound effects make the game stand out above others in this genre.


Take the feather from the owl


Talk to the tree stump

beat the system



The final part of our complete guide to Simon the Sorcerer. Struggle no more all ye adventurers

System Snippet

Bob's Bad Day

There are a multitude of codes available for this unusual puzzler. Here are just a few to start with. More next month.

Level 15= WDPDEWOF
Level 20= VDPEFWNG
Level 25= TCKFGXQH
Level 30= SEAGGVPH
Level 35= RCKHHXOI

Walk outside and collect the beer. Go to the centre of the forest. Wear the beard to go into the dwarf mine. You will find a dwarf with a spear; offer him a bribe or simply give him the beer.

Walk back up the stairs, go past the dwarf at the table and enter the mine. Go to the door and you will see a hook which you should pick up. Try the door and talk to the dwarves. Leave the mine and remove your beard.

Keep walking left to the four paths. There you should take the top left path. You will come to the stone table. Now walk right back to the four paths. Go left and left again; you will find a wise owl. On talking to him, he will lose a feather which you can take.

Go to the troll bridge. Going right you will see the three paths again. Take the middle path to the right. Continue over the bridge and you will meet an Oaf. Talk to him and ask him about beans. Simon will walk away after watering the beans. Go back and look at the beans, and pick them up.

Go to the centre of the forest. Put on the beard and go into the Dwarf mine. Go down to the drunken dwarves and use the feather on the fat dwarf lying on his back. Get the key and head upstairs. Enter the mine. Use the key on the door, go in and say to the Dwarf: "I've come to make you an offer" (and it's in the inventory). Give the Dwarf the beer voucher, saying "pah, think nothing of it". He should reward you.

Go to the village and through the archway to Dodgy Geezer. Give him the gem, making sure he doesn't rip you off. Now go to Calypso's cottage and use the beans in the compost. Pick up the watermelon.

Go to the front of the cottage, go right and then straight up behind Blacksmith's cottage. Go left and open the box. Look at the empty boxes. Pick and look at the spell book.

Take the rat bone, use the paper on the door and the rat bone in lock, pick up the paper and use the key in lock. Walk out, take the bucket and go down stairs.

Take the mints, pick up the Flaming Brand and open the Iron Maiden, talk to the Druid, remove ring, and talk again. Use the bucket and Flaming Brand on the Druid. Quickly get into the Iron Maiden. Open Iron Maiden, go to the frog and get the hacksaw which you should use on the bars. Go back to the village and to the shop and pick up the hammer. Going out of the shop, walk left, right, taking the middle path. Walk right and go first right. Use the watermelon on the sousaphone. Go to the centre of the forest and up the steps to the right. Walk into the cave entrance.

Go right, into the house. Walk to the ladder, use hammer on the plank. Go to Scull Island and take the Frogsbane. Walk back to the ladder. Continue right and use the sousaphone. Enter cave, remembering to read the sign. In the cave, give the cold remedy to the Dragon. Go back inside and pick up the fire extinguisher.

Go outside and look at the boulder, using the hook with the boulder (by clicking on boulder). Simon will climb up. Walk to the hole. By using the rope with the magnet and then using them with the hole you can collect gold pieces – you'll need 48. Walk behind cave and take and look at the rock. Go to the village and walk through the middle archway. Use the rock on the anvil.



Offer a bribe to the Dwarf

Go into the shop and pick up the white spirit. Leaving the shop, walk back through the archway and into the house. Give the Frogsbane to the frog and leave to go back through the archway to the hole.

Talk to the hole and give the fossil to the hole. Enter the cave and go right until you see the hole. Look at the dirt and take the Milrith Ore which you can use with the anvil on going back to the village.

Going back to the centre of the forest, talk to the woodcutter. Enter his house and take the climbing pin. Use the fire extinguisher with the fireplace. Move the hook and pick up the mahogany. Walk back to the fireplace to leave, to find the tree stump. Talk to the stump and go to the crossroads.

Take the bottom right path and use the hair. Look at the floorboards and use the woodworm with them. Use the ladder with the hole. Open the tomb and go inside. Open the tomb again, pick up the loose ban-


Use the beans in the compost

stage and the staff. Go to the pub, into the back room, give the wizards the staff, and pay them.

Now go to the Dragon's cave. Behind it you will find icy ledges below the climbing pins. Go onto them, continue right and talk to the tree. Use white spirit on the pink splodge and talk to the tree again. Go to the Witch's cottage. Inside you'll find the Witch; challenge her to a fight.

Keep trying the magic words on her until you defeat her. She'll turn into a Dragon, on which you can say "abracadabra", turning her into a mouse. Click on the mouse hole and escape.

Go to the Dragon's cave, walk behind it and use the climbing pin in the hole. Walk right and talk to the snowman. Consume the mints and walk up the steps.

Now go to the Tower of Doom and walk to the door. Use the broom and consume the potion. Pick up the leaf, look at the bucket and pick up the stone. Go left and use the hair with the tap. Pick up the lily leaf and use the match stick with it.

Sail to the seeds and take them. Use the stone with the seeds. Use the oil on the tap, move the hair and sail to the puddle centre. Talk to the frog and walk to him. Look at the edge of the water and pick up the Tadpole.

Talk to the frog. Consume the mushroom. Open the door and go inside. Pick up the branch, and go back and use it on the chest. Pick up the shield and the spear.

Go down the spiral staircase. Move the lever. Pick up the chest and use it on the block. Move lever again and take candles. Use the spear on the skull and pick the skull up. Go upstairs to the bedroom. Take the magic wand and talk to the mirror. Look at the book. Take the pouch and use the sock in it. Use the pouch with the hole.

Go upstairs, and look at and take the book and the chemicals. The chemicals can be used on the shield and the shield used on the hook. Talk to the Demons, and talk again telling them you can send them back to Hell. Ask for their names and draw a square on the floor. Go down and talk to the mirror asking to see the Lab.

Go back to the Demons, talk and send them back to Hell. Go into the Teleporter and go to Rondor. Talk to the attendant; look at the brochures. Use the Elastic band with the sapling. Pick up the pebble. Use the catapult with the bell, walk to the pits and across the bridge.

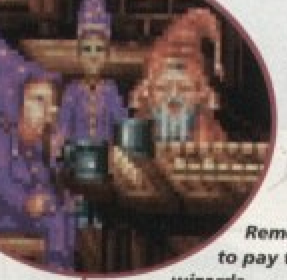
Pick up the floor wax. Use the wand on Sordid. Go back to the counter. Take the matches (found on the right). Go back to Sordid and use the matches on the pits. Use the wand in Lava. Now go back to Sordid and use floor wax with Sordid.

Congratulations, you've now finished the game!

Simon the



Give the fossil to the hole


Remember to pay the wizards





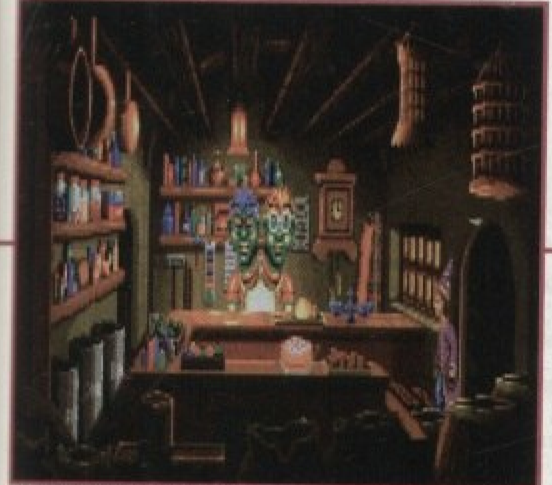
Talk to the woodcutter

System Snippet

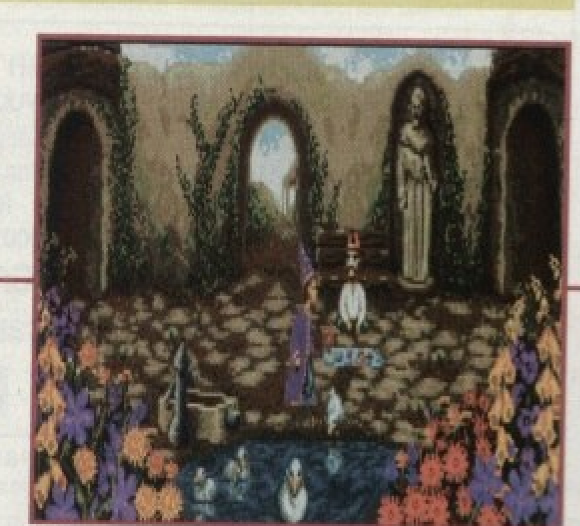


Here are some level codes to help you with the popular Ocean film licence.

B5A48352	85B48B42
E54C67AA	F54C6FAA
D5F4AB62	C57C77B2
95B48B42	D56C7FBA
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Take the hammer from the shop


Challenge the witch to a fight


Make sure Dodgy Geezer doesn't rip you off



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MR MEN OLYMPICS +Y (2) Five fun sporting events
NEIGHBOURS +Y (2) Great adventure game
ORC ATTACK +Y Gory! Stone the orcs to save the castle
ROBOULDIX +Y Boulderdash clone, the best yet!
STARBASE 13 +Y (2) Best PD game ever. GET IT!
STAR TREK (ALL NEW) +Y (2) To boldly trek . . .
WIBBLE WORLD GIDDY +Y Excellent "Dizzy" clone

UTILITIES
ASSASSINS DISK
CRUNCHERS +Y 60 crunchers
D-COPY V3.1 +Y Latest version. Very fast & simple to use
EASY BENCH +Y Workbench replacement, many extras
FREECOPY V1.8 +Y Make backups of commercial games
GAME CHEATS +Y Over 1000 cheats for commercial games
INSCRIPT +Y Video titler, works with or without Genlock
KICK 1 +Y Use A500 only games on all Amigas
LITTLE OFFICE +Y Integrated WP, database & spreadsheet
MAGNETIC PAGES V1.3 +Y Create your own disk magazine
MASTER VIRUS KILLER V2.1 +Y
MULTIFAX 6 +Y Send & receive faxes with your modem
NOTEBOOK +Y Puts text files into book form
PLASMA CLOUDS 256 +Y
PROTRACKER V3.1 +Y Excellent music editor and player
TEXT ENGINE V4.0 +Y Best PD wordprocessor
VIDEOBASE +Y Keep a record of all your videos

18+
BACK FROM THE BEACH +Y (2 Meg)
BEYOND FORCE +Y (2)
BORDELLO BEAUTIES 1 +Y
CELEBRITY SPECIAL 1 +Y
CLASSIC GIRLS 1 +Y
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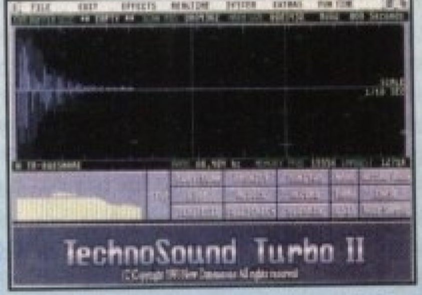
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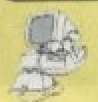
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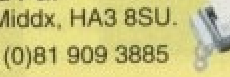
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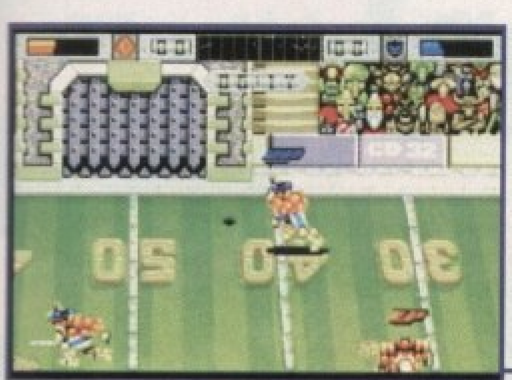
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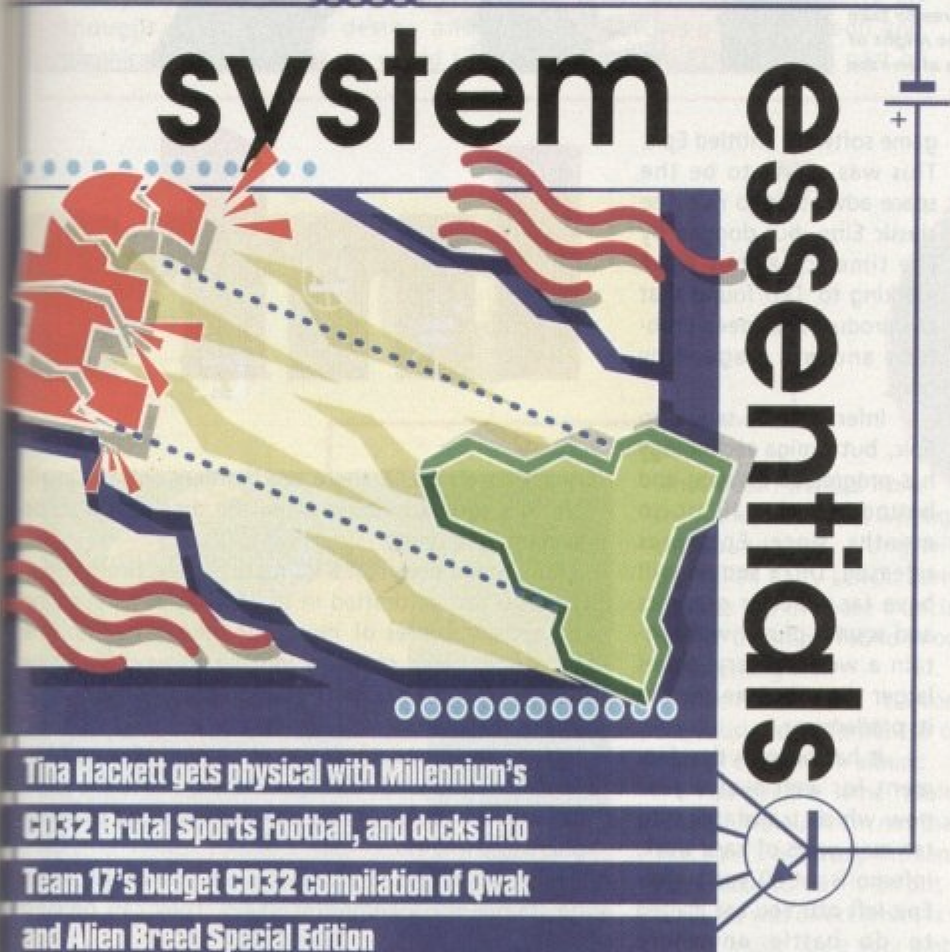
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Weapons found on the pitch will help to obliterate your opponents

Publisher: Millenium
Developer: Teque London Ltd
Disks:1
Price: £29.99
Genre: Beat-'em-up/Sports sim
Hard disk install: n/a
Control system: Control pad
Supports: CD32
Recommended: n/a

system essentials



Tina Hackett gets physical with Millennium's CD32 Brutal Sports Football, and ducks into Team 17's budget CD32 compilation of Qwak and Alien Breed Special Edition

Brutal Sports Football

Appearing across many formats, Brutal Sports has proved highly popular, and now it's here to grace the CD32. If you're not familiar with this title, the idea behind it is based loosely around American Football.

The main variation is that this version is based in the future, has no rules and the primary object, other than scoring goals, is to beat the pulp out of your opponents!

This is all depicted through gory graphics of decapitations, knifings and all other forms of physical violence imaginable. All this could encourage a high moral tone, but in this case it is more than necessary and what's more, it's fun!

As a mixture between a beat-'em-up and a futuristic sports sim, you get to guide a team of mutated creatures to League success. Winning is achieved by the obvious method of scoring the most goals or by slaughtering six of the opposition.

Pick-ups are also a major factor in deciding your victory or failure. These take several forms and can be found scattered around the pitch. Rabbits speed up your players whereas tortoises do the opposite.

Devices such as lightning or ice-cubes strike down your unfortunate opponents, but of course they can make use of these pick-ups too.

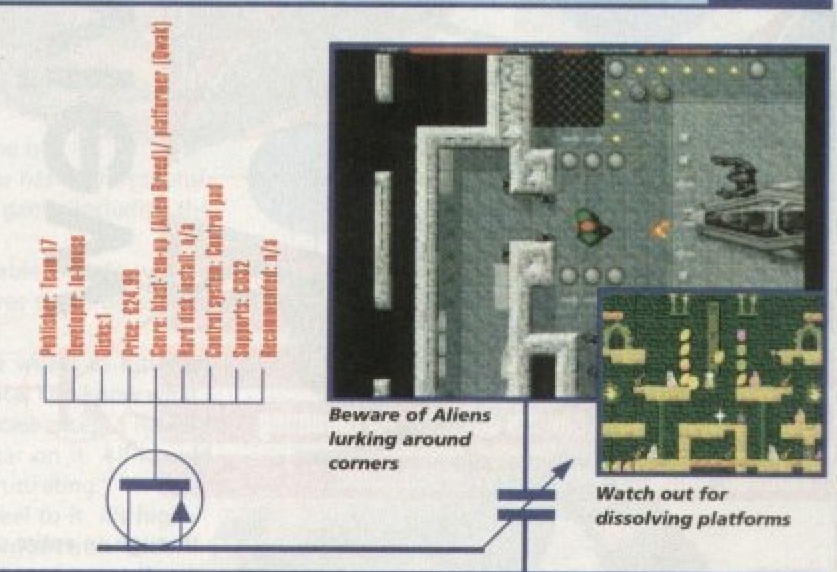
All this makes for a hugely enjoyable mixture of frantic American Football and hilarious beat-'em-up action. The two-player mode provides an opportunity for competing against a friend, and even more excitement.

Extra additions to this CD version include graphical details showing a crowd of aliens, enhanced sound effects and a rock sound track.

For those thinking of investing in some quality software for their CD32, this comes highly recommended.

72%

Publisher: Team 17
Developer: In-house
Disks:1
Price: £24.99
Genre: blast-'em-up (Alien Breed)/ platformer (Qwak)
Hard disk install: n/a
Control system: Control pad
Supports: CD32
Recommended: n/a



Beware of Aliens lurking around corners

Watch out for dissolving platforms

Alien Breed Special Edition & Qwak

Although fairly old, Alien Breed is still an excellent arcade blast-'em-up and an undoubted classic. Compared to its sequel it perhaps isn't as sophisticated but despite this it doesn't appear as dated as you might think.

Viewed from a top down perspective, you take on an alien army who have infested a Federation research station. Based in the future, you are positioned in a galaxy on the brink of war, and with the aid of various weapons it becomes your role to blast the aliens and complete the missions.

Alien Breed is a highly atmospheric game and the tension created works well as the action becomes more and more frantic, with aliens appearing out of nowhere which you need to destroy.

Good graphics contribute to the atmosphere considerably, with settings such as dingy corridors and space terminals. The added small details make highly realistic backgrounds and create a futuristic feeling.

The eerie music also conjures up a great deal of the atmosphere. Other sound effects, such as gunshots and aliens yelping when hit, work well, and sampled speech has been used to generate realism.

Extra features have been added to this new edition, such as new missions and bigger levels, so newcomers to the game and Alien Breed veterans alike will find the game a challenge. The two-player mode also adds an extra dimension to the gameplay.

This is blasting mayhem at its best, and it's well worth a look if you didn't catch this excellent title first time round.

Classic arcade platform action completes this double act in the form of Qwak, a highly playable title whose sprite is a duck. The game could be accused of being a Bubble Bobble clone but this does not detract in any way from its quality.

And although platformers these days hardly have a reputation for originality, this one stands out for its totally absorbing gameplay.

The aim is relatively simple. Clear the screen of baddies, collect bonuses and grab the keys to open the doors to the next level.

Life is made more difficult with the inclusion of dissolving platforms, time limits and all manner of strange enemies to hinder you.

Firing eggs at the enemies will eliminate them; points are awarded for successfully doing so, and after each of the eight worlds you'll face one of the tough end-of-level guardians.

The game contains a two-player feature which works well in providing variety, and the puzzle angle also adds another element guaranteeing longevity.

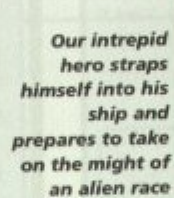
Graphics are colourful and complement the overall fun feeling of the game. This is also picked up in the accompanying tune which is in keeping with the lively gameplay. The controls are well designed and make the game instantly playable.

Qwak, although not exactly intellectually demanding, will provide hours of fun gameplay and a good laugh along the way as well.

Alien Breed 66% Qwak 60%

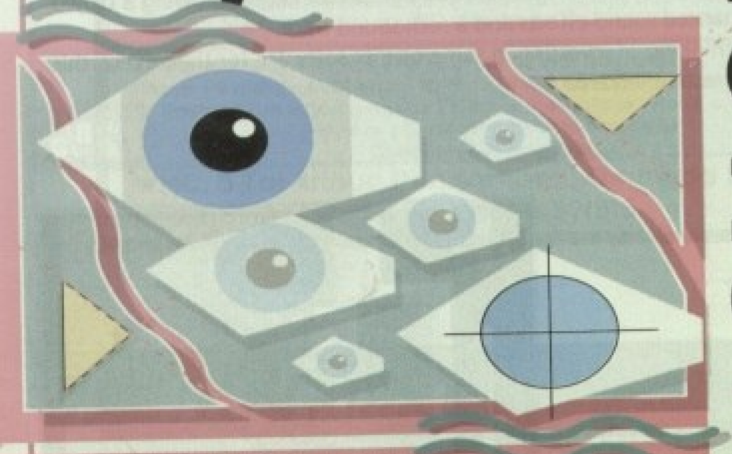

Just one of the many gruesome opposing aliens you will face in DID's spectacular space game


Our intrepid hero straps himself into his ship and prepares to take on the might of an alien race



system preview

Infe



Digital Image Design is a name that's going to be on everyone's lips in 1994. Jonathan Maddock checks out their forthcoming release, billed as the ultimate space game

Following hot on the heels of TFX (previewed in last month's System) is Digital Image Design's Inferno, which is currently being tipped by those in the know as the ultimate space game.

Inferno utilises the same 3D graphics engine that DID used for TFX, but they have updated and included some improvements into the graphics system.

Way back in September 1992, Ocean released a DID game software entitled Epic. This was going to be the space adventure to rival the classic Elite, but dogged by the time scale they were working to, DID found that the product had speed problems and was plagued by bugs.

Inferno is the sequel to Epic, but Amiga technology has progressed in leaps and bounds in the 19 or so months since Epic was released. DID's sequel will have far superior graphics and sound, plus it will contain a world several times larger than the one seen in its predecessor.

It has been in development for well over a year now which translates into ten man years of hard work. Inferno is set 90 years after Epic left off. You are invited to do battle anywhere through an entire solar system consisting of seven planets, three moons, alien and human installations and interplanetary space zones.

It's basically a typical story about humans vs aliens fighting a space war. You are taken on an impressive 3D graphic journey around beautifully scrolling landscapes.

In between the intense action of space combat you can sit back and watch the Inferno story unfold with incredible animations and characters that can actually talk. Now that CD technology has been introduced via Commodore's CD32, there are limitless options available to a software house when the time comes to do the music and sound.

Although it does cost a lot more money, professional musicians can be drafted in to produce some startling and exciting pieces of music for today's games. The Manchester-based company initially pursued big-name artists such as the KLF or The Orb to provide the musical compositions.

After much thought, Ocean appointed Nick and Mrs Fiend from the band Alien Sex Fiend to write the music that would hopefully bring that important bit of atmosphere into Inferno.

Alien Sex Fiend might seem a unusual choice to do the sounds for a computer game. They can be best


An in-game shot from Inferno


The hero flies his craft over a bustling city


An example of Sean Phillip's scene-setting artwork

The third dimension

DID have one of the best 3D engines around and it's been modified and developed over the last five years. Five or six graphic artists have been handling the 3D work for Inferno for well over eight months.

Sean Hollywood, art and design director at DID, is the man most responsible for the superb visuals found in the game.

"In terms of Inferno, development was first started to see if we could logistically do what we wanted to. We thought of some new design and graphical techniques that we would all like to incorporate into the whole package as well as 3D techniques for the in-game stuff.

"We develop on a number of multiple fronts. The design will go on in tandem with the technology as well as the artwork."

Inferno features a comic which introduces the player to the characters within the game. The man responsible for the art found inside it is Sean Phillips, renowned 2000AD artist famous for, among other projects, his superb sketches of Judge Dredd and Devlin Waugh. "The comic is part of the instruction manual – a kind of introduction to the characters and the world they inhabit. We sat down and decided that we wanted to concentrate on the interaction between the humans and aliens which isn't part of the game, but is something we were able to do extremely well in the comic."



Sean Hollywood, DID's art and design director, is the man responsible for Inferno's amazing visuals

Sean continues, "The characters are science-fiction clichés. You've got a human, blonde-haired hero and you've got your ugly, evil aliens. The characters can't die at the end. We've got to make sure they finish in the comic as they start in the game."

erno

As you see from the screenshots in this preview, Inferno looks absolutely amazing. Just wait until you see these graphics in motion!

Sean Phillips, the renowned 2000AD artist whose amazing talents have gone into creating the Inferno instruction manual

described as a Goth band and are heavily guitar-based, but they're also highly talented and can be incredibly diverse. They have over the last decade released 11 albums and gradually built up a large and faithful following. Once Alien Sex Fiend had discussed exactly what Ocean wanted from them they set about writing the soundtrack, along with a guy called Barry Leitch. Barry is one of Ocean's top in-house musician who has been responsible for the music found in over 80 games including the forthcoming TFX.

Nick Fiend found it a considerable change writing the music for Inferno. He compares the process with that of creating an album:

"You get the same result – five weeks of differing moods. Although I'm not that musical I do know what I like, so it's relatively the same process except I haven't been able to mix it or put a guitar on it. All I could really do was direct which is very frustrating."

The music has a very ambient feel to it. It's highly atmospheric and changes in conjunction with what's happening in the game. Alien Sex Fiend are hoping to give the soundtrack a more techno feel to it and then release it as a record independent from the game.

CD32 owners have been going through what I can only call a software rough patch. Microcosm raised a few eyebrows but although it had some pretty amazing graphics it was desperately lacking on the playability front.

Inferno has superb graphics and sound, but more importantly DID have spent a lot of time developing the gameplay, so CD32 owners start saving your money Inferno will become the game to buy for your machine.

I personally think that DID's space game will become one of those titles that will delight every single gamesplayer. TFX and Inferno are groundbreaking as far as technological achievement is concerned and herald a new era in computer gaming. From now on things are only going to get better... and better.

Nick and Mrs Fiend from cult band Alien Sex Fiend who along with Ocean's Barry Leitch created the ambient/techno soundtrack



The introduction sequence to Inferno will amaze you, and by the time you've played the game you'll need to lie down in a darkened room





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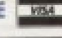
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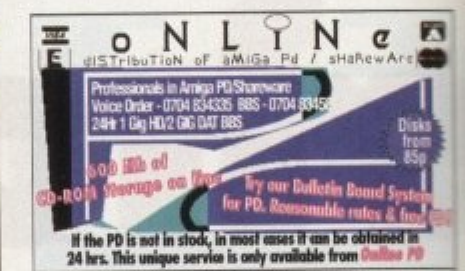
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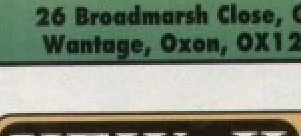
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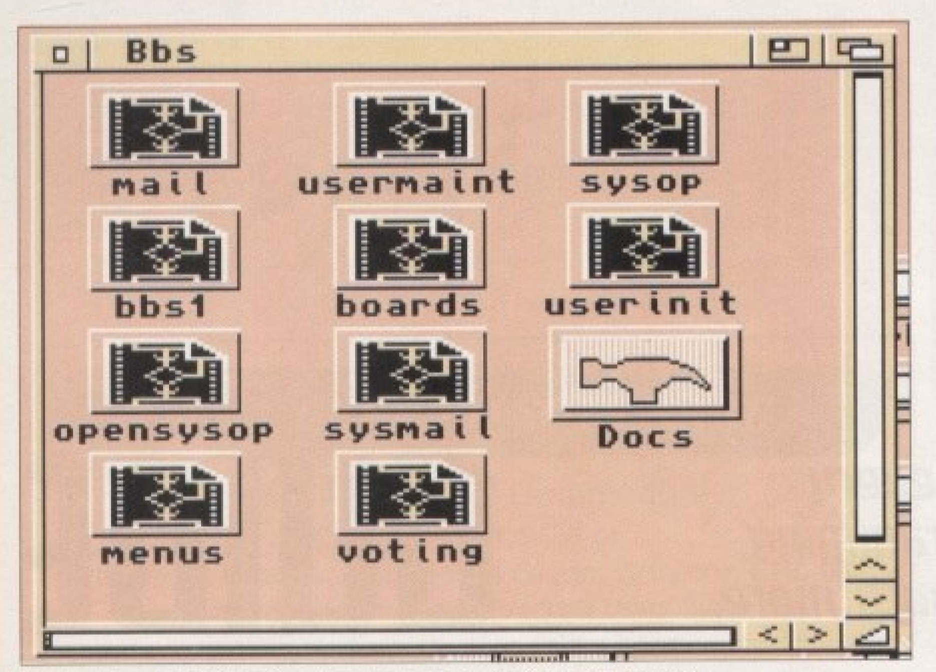
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AMIGA GUIDE

Leading you through the Amiga maze every month, with expert tutorials on programming, DTP, video, music, comms, and much much more...

Serving t



The basic-coded BBS software can at least be re-jigged by the user

Some people love to use BBSs, and spend all their time (and of course money) playing with conferencing systems, sending huge wads of cash every month to a big building in Cleveland, Ohio.

While paying the bosses of CompuServe to drive expensive cars is fun for a while, it soon palls and you realise that what you want most is to start your own system, and so not have to worry about paying for your on-line time.

Once you get past that initial leap, you are into a very deep muddy puddle indeed, because while setting up a BBS is physically quite easy, technically it is fraught with difficulties the larger your system gets. The trick is to start with a plan, and being the kind soul I am, I thought now would be a good time to tell you how it's all done.

The Three Point Plan goes like this: there is a simple method, a medium method and really devilishly complex method. You can start at one end and work you way up to the most complex configuration, or jump right in at medium or complex, it's up to you.

But I would advise that you hone your sysop skills on a smaller system before you start laying out dosh hand over fist for a full-size ten line BBS and conferencing system for the masses.

It's one thing to make an error on a small system where you only have yourself to blame, but try cocking up when you have 100 angry subscribers out for your blood, and you'll wish you'd listened to my advice.

SIMPLEST

The simplest sort of BBS can be set up in an afternoon, as you already have most of what you need in your machine, if you're into comms in any way that is. All you need is a computer (One Amiga: check!) a modem, and a bit of host software.

There is a natty little one which comes with NComm which will do the job. All you have to do is set your modem to answer, set up the software and wait for people to call.

Oh, and it would be a good idea to tell people you have set up a BBS or nobody will call you!

You don't need to have another phoneline dedicated to the BBS, as you just have to limit the amount of hours the BBS is active, say between 9pm in the evening and 8am the next morning, or even just evenings at weekends, and such. Most BBS freaks will stay up late to catch a BBS.

As far as the hardware is concerned, the Amiga needs to have a hard disk to store the BBS software and make the system run reasonably fast. The modem should really handle speeds up to 14,400 baud, although 9,600 will suffice. The comms software you use will generally be free or shareware, although if you really must spend the dosh there are some very good programs commercially available too.

The following hints really go for all types of BBS. Before you can run a BBS, your modem needs to be able to automatically pick up the phone and connect the user who's dialling you up to your computer.

To set a modem to answer the phone you have to type ATS0=4, which is the Hayes code for auto-answer. the 4 in this case means that the phone will ring four times before being answered.

To set the modem back to non-answer mode, simply set ATS0=0. Sometimes the software will handle this automatically, but check this out before you go typing in INIT strings.

Secondly you have to set up the software. This can be easy or hard depending on the software, and usually just involves writing all the text for the menus and messages which

The Elite BBS v.31 Copyright 1991 by Nic...

Elite BBS Utilities Menu

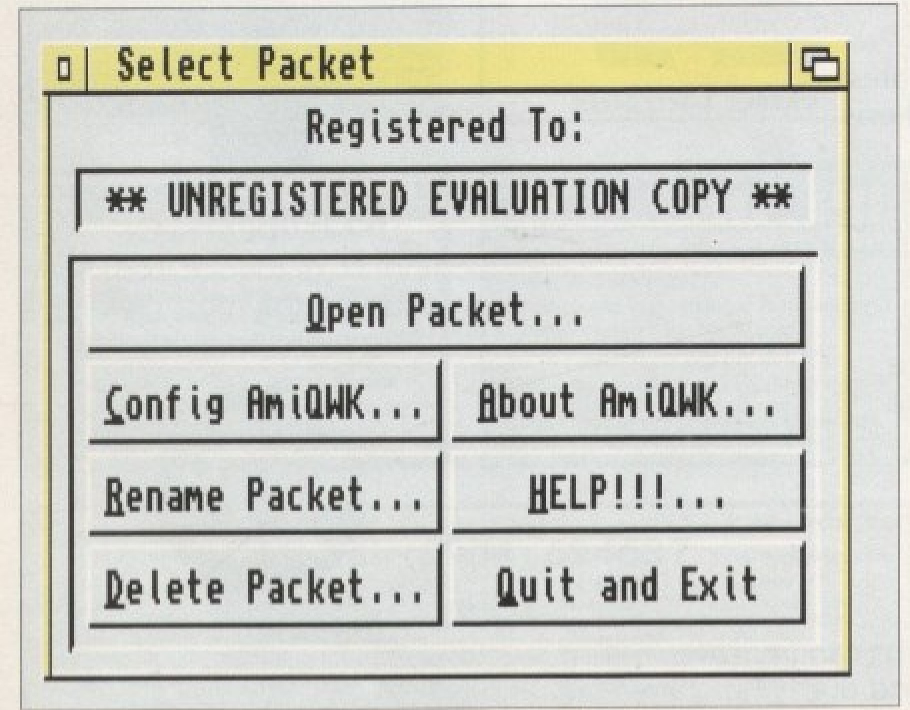
You have the following options:
1 - Parameters change
2 - Create Elite files
3 - Edit users accounts
4 - Make transfer listing
5 - Search for a file in transfer sect...
6 - Expand the Mail.Keys and Mail.Data ...
7 - Expand the Board.Keys and Board.Data...
8 - Exit program
Choose (1 - 8): Enter Number:

the user will see on the system. This obviously involves a little bit of planning, so design what you'd like the system to include before you start menu hacking.

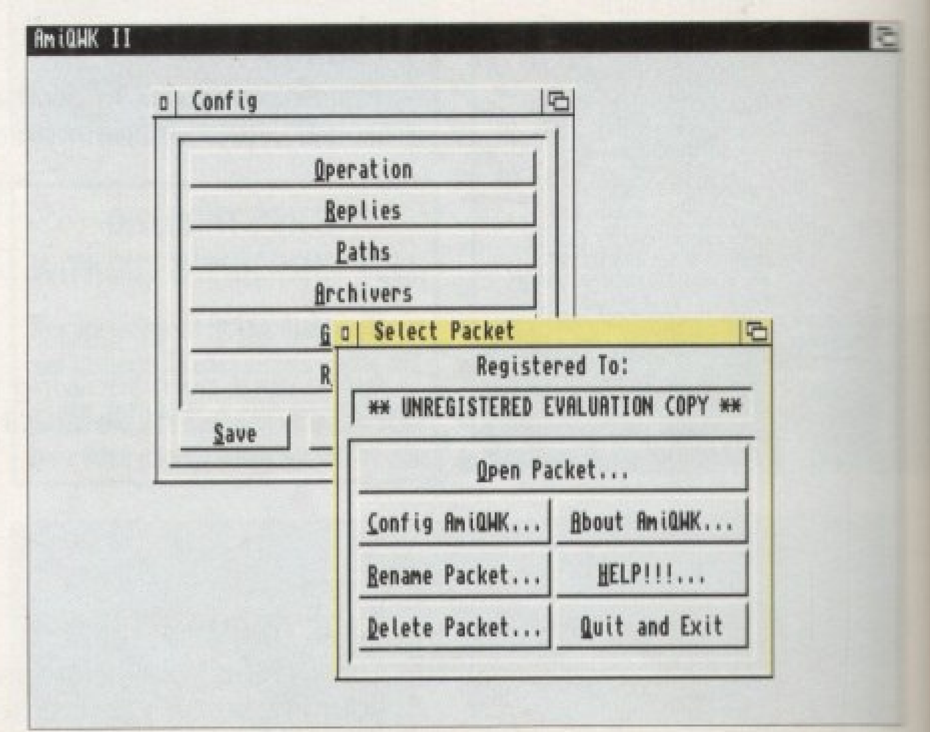
Finally you have to advertise that your board is active and let people know what it is they can expect if they call it. Is it a machine specific board, full of Amiga files? Is it about gardening or conjuring? Is it a full-colour, all-singing, all-dancing board designed for entertainment, or just a simple text-driven information resource?

Forward planning is everything in this world, and if you want a system that people will come back to, it has to be clearly laid out and easy to use.

The drawbacks of this simple system are that only one person can access your BBS at



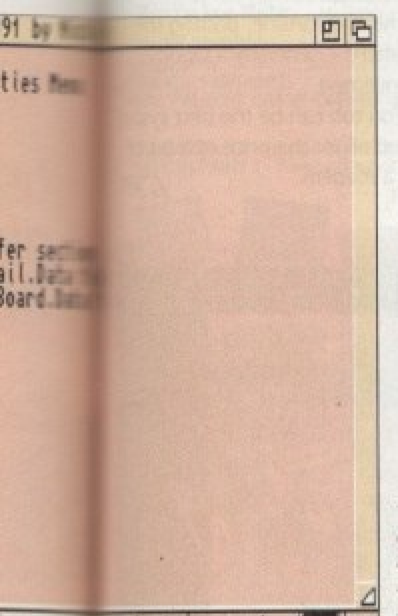
Configuration and installation are two very important aspects for any new Sysop



The QWK off-line reader is supplied with the Excelsior Professional software

g the system

Phil South looks at the trials and tribulations of setting up your own bulletin board system, and covers some of the pitfalls and technical problems you might encounter



Trimmed down perhaps, but Elite BBS is not a bad little system

a time, and you'll only have limited room on your hard disk for files, and limited amounts of files to download.

You could expand this a lot if you have a CD-ROM with the Fred Fish or Aminet software on it, but by and large you'll be limited to whatever software you already have lying about.

CATCHY TITLE

A few points: Think of a catchy title. Calling yourself the Greasy Sausage BBS is unlikely to win you many fans, except perhaps among greasy sausage eaters.

Try something with a science-fiction or fantasy flavour, like Crazy Robot, Grey Planet, Wizard's Demesne, or Warrior's Tomb. The title of your BBS should reflect the kind of BBS it is, so slipping the word Amiga in there might help.

If it features a lot of file and chat areas then the word Exchange is popular. Organise the menus is a logical way, and minimise the amount of input you demand from the punter.

Oh yes, and if your BBS software permits, why not use ANSI colour graphics? These enhance the look of your board and make it look professional – unless you're not so clever with ANSI graphics of course, in which case it looks like disorganised crap.

Once you have experienced running your own BBS on a single line, and you've built up a user base of enthusiastic followers (or perhaps not), the time has come to expand to the next level of being a sysop – the dedicated line.

This involves getting a new BT line running into your home so the BBS can run 24 hours a day. OK, so people can only access the system one at a time, but at least they have a wider choices of times of day to call, especially with the new cheap daytime phone rates.

If you are running a 24-hour BBS, then the trick is to expand your hard disk, get better software which handles more features, and thereby increase the usefulness of your system.

As you are starting to lay out money for your system, it may be as well have a subscription too, meaning that sooner or later you can make your money back on the stuff that you've paid out for.

Subscriptions are best paid by cheque, and when the cheque has been validated, you can upgrade the user to a higher access level. This could mean they have access to areas closed to the general non-paying public, or they could have unlimited time, as opposed to a non-paying guest limit of 30 minutes or so.

To boost the amount of uploads you get, you can also get the software to specify upload/download ratios of 2:1, so to download one file the user has to upload two, or something like that, or perhaps if you think that's a bit harsh, how about 1:5, where they have to upload one item for every five they download. Now you're really cooking, and the system is starting to look and feel like a real system.

After that the sky's the limit. If you BBS is commercial enough to pull in the users, you can add all sorts of stuff with the money you'll make: Internet and Fidonet feeds, Usenet news, on-line games, and most important of all multiple lines.

MULTIPLEX

And in this day and age an ISDN line wouldn't go amiss. ISDN is a really fast multiplexed system which allows not only 64,000 bits per second but also two lines simultaneously.

So you can transfer files and talk to your bookie at the same time! It only cost the same as two lines too, so if you are thinking of this it might be a good idea to call BT for more details.

Multiple lines in the conventional sense means one line for every serial port and modem on your host machine. This means you either have to get a lot of machines all running the same software (not a good idea) or you have to get a multiple serial port card for your Amiga.

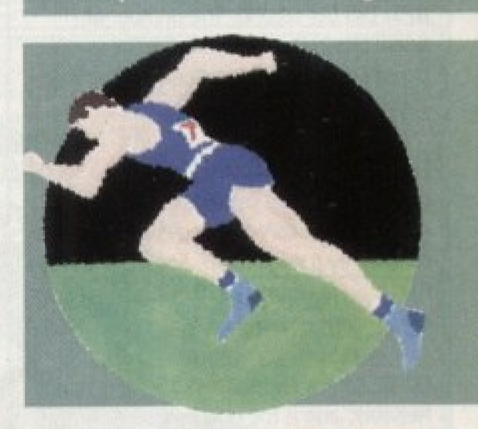
The ones which spring to mind for this purpose are the GVP IO Extender board ($199), the Dual Serial Board from ASDG ($299), and the Comports 8 ($479) and Amiga PCMCIA Serial Comms Adaptor ($249) both from Amigo Business Computers in the USA. The latter unit means you can add multiple ports to an A600 or A1200 via the PCMCIA slot!

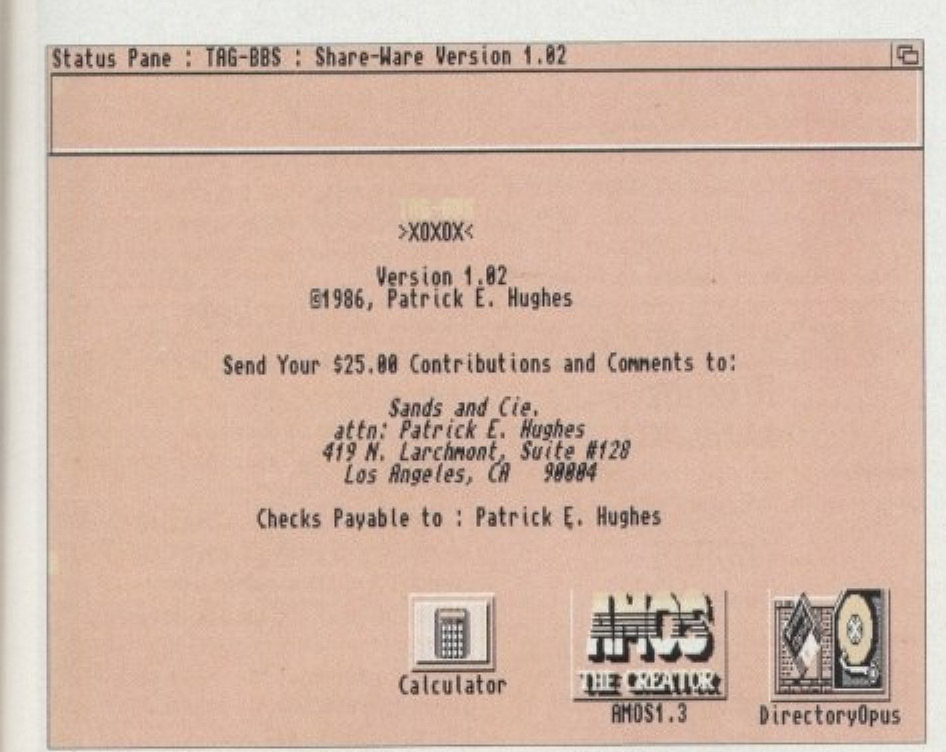
If you earn a lot of money out of your BBS you can even quit your job and become a full time sysop, which has happened in a wide variety of cases. It is a big job, and you'll soon have to hire some help if your system gets really big.

You will also quite early on have to declare your earnings from the system for tax purposes. This is simple, as all you have to do is hire an accountant (free until they do your accounts) and they will sort out all this nasty paperwork for you.

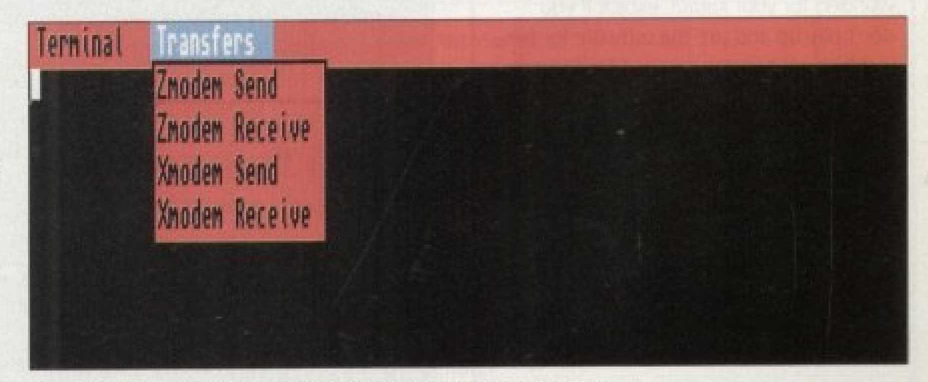
All you have to do is keep a record of how much you earn and how much you spend on the system, and you'll be laughing. Not only that, you'll never have to talk to the tax man or answer any ➤

Up and Running





Though now falling behind, TAGBBS is a very smooth system



Graphically uninspiring, but trinity is still one of the best

Jargon buster

ANSI: Stands for American National Standards Institute. Generally refers to the ANSI Character set, the standard character set for computers, which although has certain inconsistencies between platforms like Amiga and PC, is the set used by BBS software. It also refers to the coloured graphics you see on BBSs.

bandwidth: The amount of information that can flow between two points at a given time. Also used to denote the amount of information a person can absorb before their brain swells up and squirts out of their ears.

baud rate: Pronounced "bored". Commonly described as the rate at which your modem can send and receive information. Not the same as BPS, as baud rate is the amount of modulation changes per second on a given channel. Three hundred bits per second is 600 baud, if you want to be picky – see bits per second or BPS.

BPS: Bits per second. The number of actual bits (rather than modulation changes) that a modem sends per second – see also baud rate.

Hayes: The Hayes command set is a set of codes understood by almost all modems in use today, based on a simple set of codes prefixed by the letters AT. So ATZ is reset, ATH is hang up and ATS0=4 is auto answer in four rings.

ISDN: Stands for Integrated Service Digital Network, and is the only fully digital multiplexed comms system we have. When I say "we", I mean anyone with the money to have it installed. It replaces the old analogue way of doing things with a full digital network over normal BT lines. It is expensive though.

RS232: One of the existing standards for serial ports, which just so happens to be the one adopted by the Amiga. This identifies not only the type of port but the cables you need to use that port.

shareware: Freely distributed software which you get to use for nothing for a specified time, but after that time you have to pay the author. It's a very cosmic way for software to change hands, and does wonders for your karma, except if you don't pay up and use the software for free, in which case you're damned for all time.

terminal: terminals used to be dumb devices who's only job was to communicate with another computer. They consist of a screen, a keyboard and an RS232 socket, plus a bit of simple software in ROM. You can emulate one of these old-fashioned devices with a terminal emulator program, like NComm.

letters form the Inland Revenue because your accountant will get all the letters too and deal with that for you as well.

Another slightly negative aspect of being a sysop is that you might unwittingly fall foul of the law, if your BBS is discovered to contain any copyright software or porn.

Piracy and porn are the scourge of the BBS business and every day you read in the trade press about a BBS being raided and all the disks in the building being impounded as evidence.

This means not only any disks used by the BBS but also any disk belonging to you, your friends and also any hardware you own, like modems and computers etc. This can be a very expensive mistake, and it would be wise to avoid any possible problems by being very strict about what you allow people to upload.

SHOT OFF

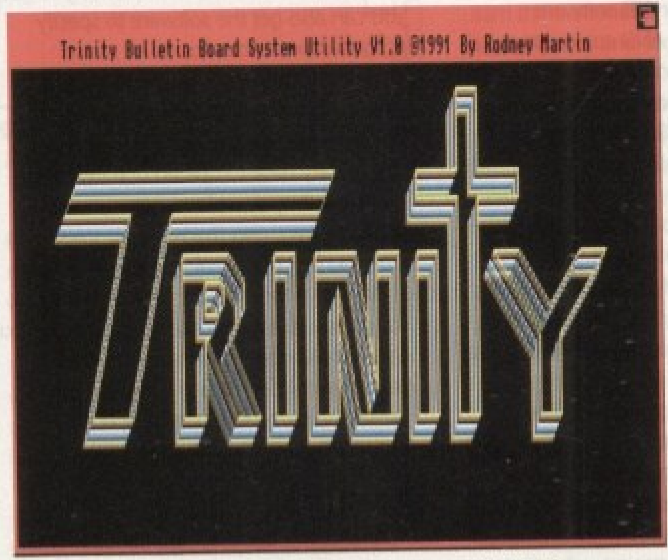
Post warning messages state that anyone putting your BBS at risk by uploading suspect material will be shot off the system and not have their subscription refunded, to cover the administrative costs of sorting the mess out.

Also you have to ensure that the system is virus free, by routinely checking everything which is uploaded to the system. Being a sysop is fun, but you also take on a great responsibility.

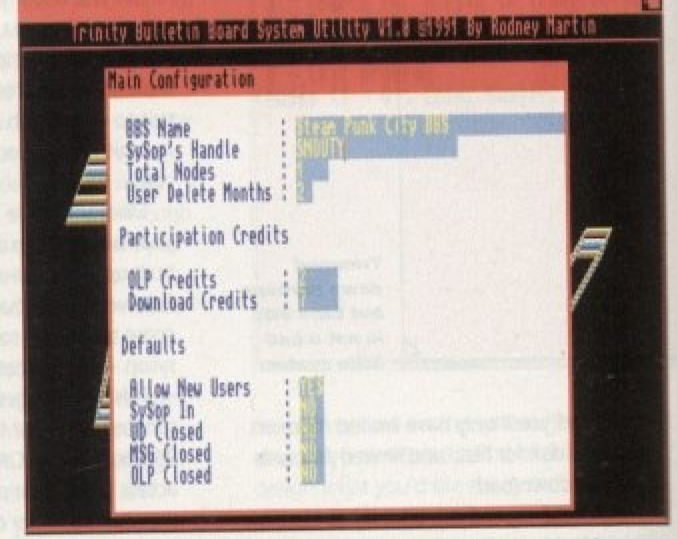
The bonuses are that you are involved in something really good. You are getting people together and all your on-line exploits can be free. All the people you meet are dialling you, so you don't pay a bean.

And it could end up being your job, earning you fame and fortune, putting the planets in alignment – generally a Good Thing for all concerned.

So that's it. You too can be the best sysop in the world, and all for the price of a bit of shareware and a modem.



Colour Ansi graphics can really brighten up a dull BBS screen



Trinity will give the Sysop full control over his or her BBS

What software?

BBBBS
(Fred Fish 797)

ARexx host script for use with the outmoded Baud Bandit, which as BB is not widely available any more, and a bit of a washout.

BBS
(Fred Fish 30)

A cheap Basic-coded BBS system, which could be re-coded into something smart if anyone could spare the time.

CNet Amiga
(Perspective Software $129.95)

Fully featured BBS system, with scope for up to 24 lines, with feeds for Fidonet and Usenet. Needs a hard disk and 1Mb of RAM, plus 100k for each additional line.

From your local dealer or direct from Perspective Software, PO Box 40191, Redford MI 48240, USA. Tel: 010 1 (313) 537-6168.

DLG Professional
(Telepro Technologies $229)

A full professional BBS, comes bundled with Trapdoor and DLGMail and is the best ready to serve Fidonet package around. It's not a single program but an integrated suite which run together to form a very complex BBS operating system.

All it needs is 512k and a hard disk. Get it from your dealer or direct from TelePro Technologies, 7898A Gaetz Ave., Red Deer, Alberta T4P 3N4, Canada. Tel: 010 1 (403) 347-3262.

EXCELSIOR!
Professional (Syscom Design $199.95)

One of the finest and easiest to use commercial systems. Full GUI control, BBSLINK links BBSs together, Fidonet, Usenet and Internet mail, private mailboxes, QWK off-line reader, and ARexx interface.

A demo version is available. From your local dealer or contact Syscom Design, PO Box 452, Clair Shores, MI 48080.

NComm
(Fred Fish 621)

Shareware. Industry-standard comms program with bonus Host mode.

TAGBBS
(Fred Fish 883)

Shareware. Used to be a really good system, but has since been overtaken by other freeware and shareware systems like TrinityBBS.

TrinityBBS
(shareware)

A really good system which is free to download from any BBS which has it. This is pretty much the best of the bunch, shareware wise, and deserves a look, if you can trace it.

EliteBBS
(Fred Fish 444)

A trimmed down on-line message and file handling system, which includes a message base, private mail, file library, and support for XModem, Ymodem and ZModem. Not bad.

Xenolink
(IHD Global Computer Center $165)

Multi line BBS with Fidonet support, with extensive menu configuration to allow the system to look like any popular system or even to invent your own.

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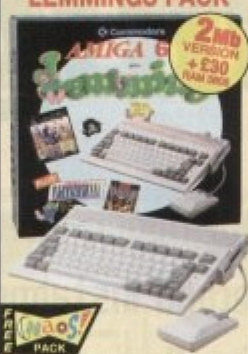
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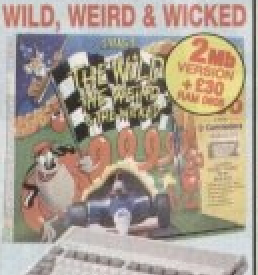
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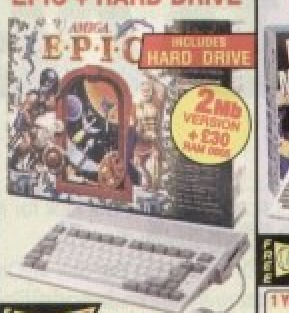
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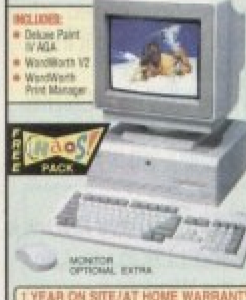
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Stepping into

Get your floppy disks to auto-boot in this second instalment of Steve White's exclusive AmigaDOS 3.0 tutorial

In last month's issue we created the necessary drawers and a basic startup-sequence needed for an AmigaDOS disk to auto-boot. Now we will be adding the necessary files to make the disk load with a minimum system environment.

If you take a look at the startup-sequence we created last month you'll find that it is made up of the following C commands – Echo, Assign, LoadWB and EndCLI.

Any commands in the startup-sequence must be present in the C directory so you will need to copy the necessary files across from your Workbench disk.

Type in the following:

```
Copy c:echo to MyDisk:c
Copy c:assign to MyDisk:c
copy c:loadwb to MyDisk:c
copy c:endcli to MyDisk:c
```

As we add more commands to the startup-sequence so you will need to copy them into the C directory.

Certain applications require their own fonts. Fortunately, AmigaDOS compensates for this by storing fonts in the Fonts drawer and assigning the label FONTS: to it. From the Shell type in the following:

```
makedir MyDisk:Fonts
```

Edit the startup-sequence again and underneath Assign ENV: Ram: type in:

```
Assign FONTS: MyDisk:Fonts
```

To save the startup-sequence press Esc, x and then Return.

Now, whenever you copy an application over to MyDisk you can copy any necessary fonts into the Fonts drawer. When the application is run it will look for its fonts in the FONTS assign directory.

In order to give the disk MyDisk some default preference values we need to copy across the file system-configuration that resides in the Devs directory of your Workbench disk.

System-configuration is a small file that contains simple preference information such as the default printer (Generic), screen resolution and colours.

Obviously, if you want more control over your preferences you will need to copy across the Prefs drawer and associated files. Don't worry about this for now as we will be explaining this in greater depth in a future issue. For the moment simply copy the system-configuration using the command below:

```
copy devs:system-configuration to
MyDisk:devs
```

At this point we may as well copy over the device driver files as well. Device drivers are required if you want your Workbench to be able to communicate with external hardware such as a printer or modem.

The files we need are clipboard.device (contains writing and reading clips to CLIPS); parallel.device (controls access to the parallel port); printer.device (controls access to the printer device, and serial.device which controls access to the serial port).

In order to copy these across type in the following in the Shell:

```
copy devs:clipboard.device to MyDisk:devs
copy devs:parallel.device to MyDisk:devs
copy devs:printer.device to MyDisk:devs
copy devs:serial.device to MyDisk:devs
```

In a later instalment of this tutorial we will be showing you how you can get a printer up and running from your auto-booting disk. The devices above will then come into use.

We now need to add a single file to the L directory. The file we need is called port-handler and basically provides the AmigaDOS interface for the SER:, PAR: and PRT: devices. These devices basically allow output to printers and modems.

Don't worry too much about them as once they are copied onto the disk the user need never worry about them again. To copy the file across use the following command:

```
copy l:port-handler to MyDisk:l
```

Last, but by no means least we need to copy a couple of libraries across to the Libs directory. The two files are called asl.library and diskfont.library. Asl.library provides the file, font and screen requesters that AmigaDOS uses and Diskfont.library contains information that allows Workbench 3.0 to interpret fonts and read them.

Diskfont's major advantage is that it allows two or more programs to multitask (be loaded and running simultaneously) and use the same font. Copy these files across with the following commands:

```
copy libs:asl.library to MyDisk:libs
copy libs:diskfont.library to MyDisk:libs
```

Now the basic files have been copied across you can test your disk by inserting it into DF0 and rebooting your Amiga.

The disk should load with no problems. Open up MyDisk by double-clicking on the disk icon and take a look at the top window bar.

This bar should inform you that MyDisk is 14% full, 718k free and 119k in use. Use Show All Files from the Window menu on Workbench to see the drawers and their contents.

If everything is as it should be you have successfully completed the first section of the tutorial. If not, we would advise you restart the tutorial from the beginning.

We can now create the preferences files and assigns MyDisk needs so that we can eventually use a printer. In order for us to use the preferences programs we need to create an area for any preference files to be stored. These files are loaded when any preferences program are run.

The preferences files reside in

```
AmigaShell
5.Workbench:> copy c:echo to MyDisk:c
5.Workbench:> copy c:assign to MyDisk:c
5.Workbench:> copy c:loadwb to MyDisk:c
5.Workbench:> copy c:endcli to MyDisk:c
5.Workbench:> makedir MyDisk:Fonts
5.Workbench:> copy devs:system-configuration to MyDisk:devs
5.Workbench:> copy devs:clipboard.device to MyDisk:devs
5.Workbench:> copy devs:parallel.device to MyDisk:devs
5.Workbench:> copy devs:printer.device to MyDisk:devs
5.Workbench:> copy devs:serial.device to MyDisk:devs
5.Workbench:> copy l:port-handler to MyDisk:l
5.Workbench:> copy libs:asl.library to MyDisk:libs
5.Workbench:> copy libs:diskfont.library to MyDisk:libs
5.Workbench:>
```

Here you can see the basic Shell commands that need to be entered in order to create the correct directories and copy the necessary files across to MyDisk

Editing in Ed

Ed, the text editor used to edit the startup-sequence features a wealth of word processor abilities. Below is a list of some of the Ed editing keys and their effects:

Shift+up arrow	Top of the file
Shift+down arrow	Bottom of the file
Shift+left arrow	Left edge of the Ed window
Shift+right arrow	End of the current line
Ctrl+]	To right edge of current line
Ctrl+E	Start of the first line on the screen
Ctrl+T	Start of the next word
Ctrl+R	Space following the previous word
Tab	To the next tab position
Ctrl+D	Move 12 lines down through the file (if possible)
Ctrl+U	Move 12 line up through the file (if possible)
Ctrl+V	Refresh the entire screen
Backspace	Delete the character left of the cursor
Del	Delete the character under the cursor
Ctrl+O	If the cursor is over a space, all spaces up to the next character are deleted. If the cursor is over a character, all characters up to the next spaces are deleted
Ctrl+Y	Deletes all characters from the cursor to the end of the line
Ctrl+B	Deletes the entire line
Esc, q	Quit Ed
Esc, x	Save file

Command syntax

```
LoadWB [-DEBUG] [DELAY] [CLEANUP] [NEW-
PATH]

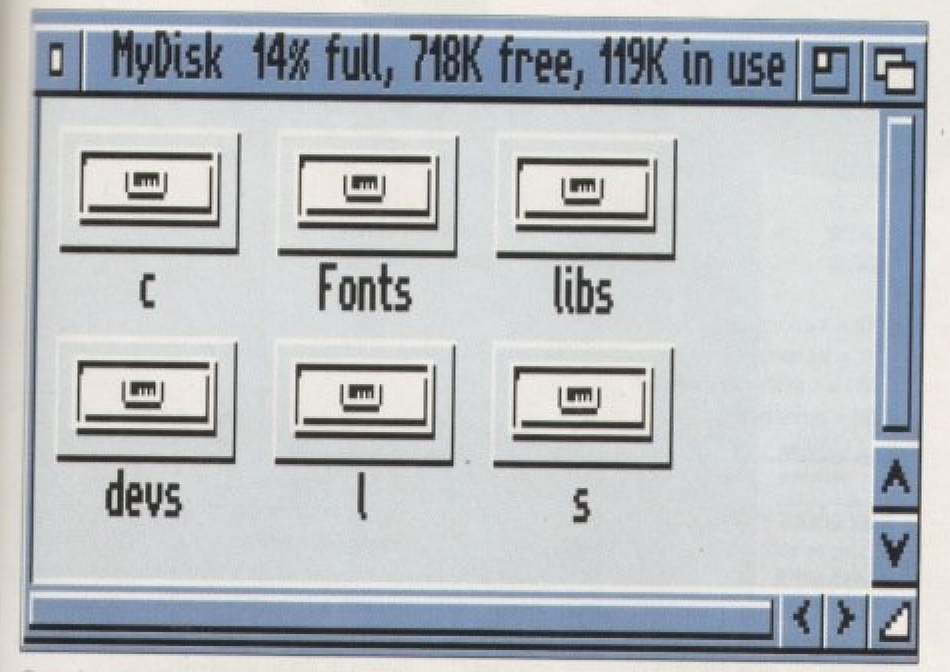
Copy [FROM] [Path | Pattern] [TO] [Path
| Pattern] [ALL] [QUIET]

Ed [FROM] [Path | Pattern] [SIZE <n>]
[WITH Path | Pattern]

[WINDOW] [TABS <n>] [WIDTH <n>] [HEIGHT
<n>]

Version [<library | device | file>]
[<version #>] [<revision #>] [<unit #>]
```

toAmigaDOS 3.0



By using the Show All command from the Workbench menus you can check the contents of MyDisk

Sys:Prefs/Env-Archive/Sys/ which is pointed to by the assign ENVARC. At this point we also need to edit our startup-sequence. Load up Ed and the startup-sequence from MyDisk and delete the following line:

```
Assign T: Ram:
Assign ENV: Ram:
```

Now, below the Echo command type in the following:

```
Makedir Ram:T
Makedir Ram:Clipboards
Makedir Ram:ENV
Assign CLIPS: Ram:Clipboards
Assign T: Ram:T
Copy >NIL: ENVARC: Ram:ENV ALL NOREQ
```

Save the startup-sequence and then open up the Shell and type in the following commands:

```
Makedir Sys:Prefs
Makedir Sys:Prefs/Env-Archive
Makedir Sys:Prefs/Env-Archive/Sys
```

What we have effectively done here is created an area where the preferences default files can reside – MyDisk:Prefs/Env-Archive/Sys. We have also created individual drawers for ENV, T and CLIPS stops RAM from becoming cluttered.

You will notice that we have not assigned ENVARC which points to the preferences defaults. This is because ENVARC is built into the ROM (Read Only Memory) and therefore doesn't need to be manually assigned in the startup-sequence.

The reason we copy the ENVARC preferences defaults into ENV in RAM is because they are quicker to load and also you can use your preferences without effecting the originals. Obviously, when you actually come to save the preferences the originals are written over.

Before we go on to improve our auto-booting disk let's take a look at some of the most common problems when dealing with AmigaDOS and how to get around them.

Let's take a look at the Shell in closer detail. Although it looks fairly basic it features a very useful facility that is not immediately apparent.

If a mistake is made when typing in an AmigaDOS command, most users will simply re-type the command. However, this is not necessary as the Shell has the ability to retrieve previously entered commands with the cursor up and cursor down arrow keys.

Another common problem is a failure to copy libraries when copying utilities or installing applications on a hard drive. Remember, all AmigaDOS disks have the same structure. It is important when copying programs to make sure that any relevant libraries are copied also.

If you have ever seen a requester pop up telling you that you need a library version something or other then you can be sure that you haven't copied all the necessary files across.

Sometimes the requester will appear informing you that you haven't got a certain library in the Libs directory when in fact you have. The deciding factor here is the library version number.

Almost all library files contain version information which you can use to find out how old or new a library is. You can then copy or keep the latest version.

To find out the version number of the diskfont.library, for example, type following in the Shell:

```
version MyDisk:libs/diskfont.library
```

This will return the statement "diskfont.library 39.3".

As version is fairly useful it should really be copied onto MyDisk. It is only 4k in size so it won't take up much space on the disk. Type in the following command:

```
copy c:version to MyDisk:c
```

Now that version is installed you should have no problems installing the correct libraries for applications. This month's CoverDisk includes a superb utility called SnoopDOS which is ideal for finding out if programs are calling any libraries or other such files.

SnoopDOS opens a window and reports any calls made by applications. Anything that is missing is registered as a fail. You can then copy the missing files across.

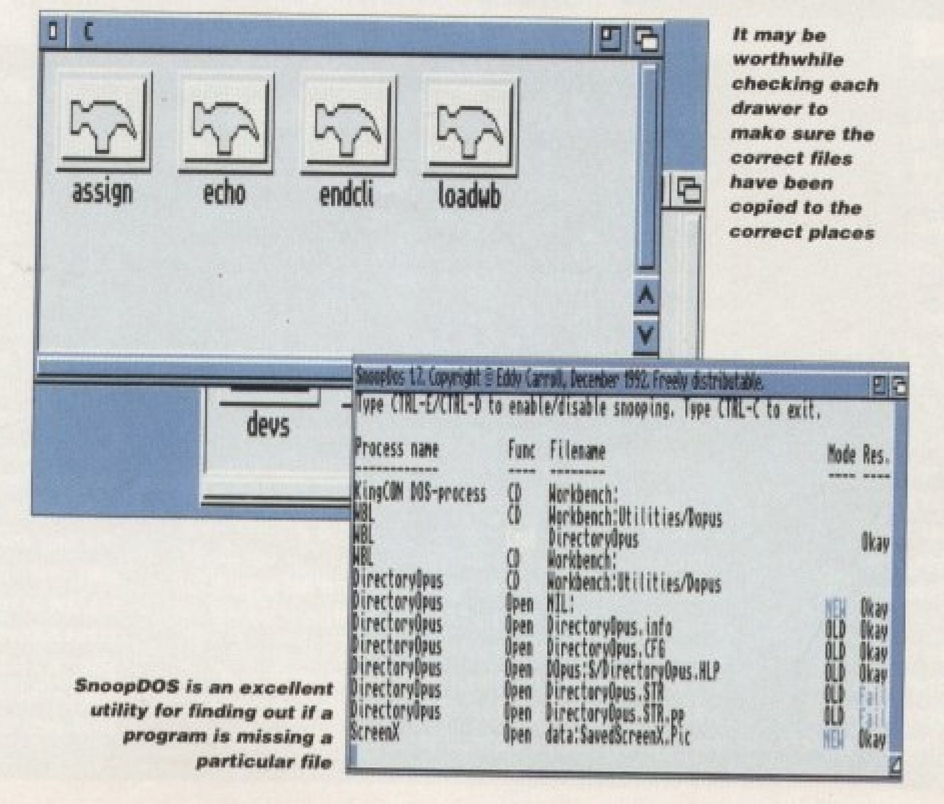
In next month's issue we will be finding out how to get a printer up and running as well as copying the preferences programs.

Jargon buster

DEVS:Clipboard.device: Controls writing and reading clips to CLIPS:.
DEVS:Parallel.device: Controls access to the parallel port.
DEVS:Printer.device: Controls access to the printer device.
DEVS:Serial.device: Controls access to the serial port.
DEVS:System-configuration: Contain basic default preferences such as printer, colours and resolution.
L:Port-handler: The AmigaDOS interface handler for the SER:, PAR: and PRT: devices.
LIBS:Diskfont.library: Library modules for finding and loading font files.
LIBS:Asl.library: File, font and screen mode requester modules.
FONTS: Stores fonts and their descriptions.
ENVARC: Stands for environment variables archive and points to the location where all the preferences default files are stored.

AmigaDOS 3.0 Part 2





It may be worthwhile checking each drawer to make sure the correct files have been copied to the correct places

SnoopDOS is an excellent utility for finding out if a program is missing a particular file

Packing it

Are you ready for another trip into the wonderful world of 68000 machine-code? Following on from last month, when we took over the system and set up a 32-colour screen. We'll now add the main character of the game, that little yellow blob that answers to the name of Pacman.

What we want is Pacman moving around the screen under joystick control, so we'll need a routine to read the joystick, and another to draw the sprite onto the screen.

Of course we want the sprite to be animated too, as it would be a bit boring if he wasn't. That's really no problem though; we just need to change the graphics part in the sprite-structure every frame. What? Trust me!

First of all we need to decide whether to have Pacman as a software or hardware sprite. Perhaps I'd better explain what the difference is. A software sprite is one physically drawn onto the screen bitmaps with the blitter; this takes time but there are no restrictions to the number of bobs (Blitter OBjectS), their size or the number of colours they have.

On the other hand we could use hardware sprites, which are much easier to use and don't take any processor time at all to draw. There are drawbacks though (aren't there always?) – in their basic form there are eight hardware sprites which are a fixed 16 pixels wide and can have only four colours, though two sprites can be "attached", giving one with 16 colours.

COLLISION

There is another advantage to using sprites of the hardware variety in that we can use the hardware collision detection registers to find out what sprites have run into other sprites, or a background colour. It is much better to use the hardware collision registers if you can as they are pixel-perfect in their collision detection and of course take no processor time to calculate!

Don't you just hate those games where the programmer has taken it upon himself to code his own collision detection routines, but hasn't done a very good job of it, and you are left fuming when your ship explodes even though you know the other ship didn't touch you?

Talk about re-inventing the wheel. All right, I know that there are times when you can't use the hardware collision detection registers, but they could at least do as good a job at coding their own routines!

There are other ways the hardware helps you if you're coding your own collision detection routines, eg the blitter has a function where you blit two areas together and you are told whether the two areas touched, even with a single pixel, so there really is no excuse for not coding a decent collision detection system

To keep things simple I've decided to use hardware sprites for Pacman and the ghosts. As four colours are a little limiting, for Pacman I'll attach two hardware sprites to form a 16-colour one. The ghosts will need to be four-colour sprites though, giving us up to six ghosts.

All right, now we've got that sorted out I'll go into how we go about actually setting up our sprites. The first thing to do is to set up the sprite structures, which are in the form as shown in Fig I.

The first two words in the structure are the control words which contain the sprite's x and y co-ordinates, the scanline after the last line of the sprite (N) and another bit defining if the sprite is attached or not.

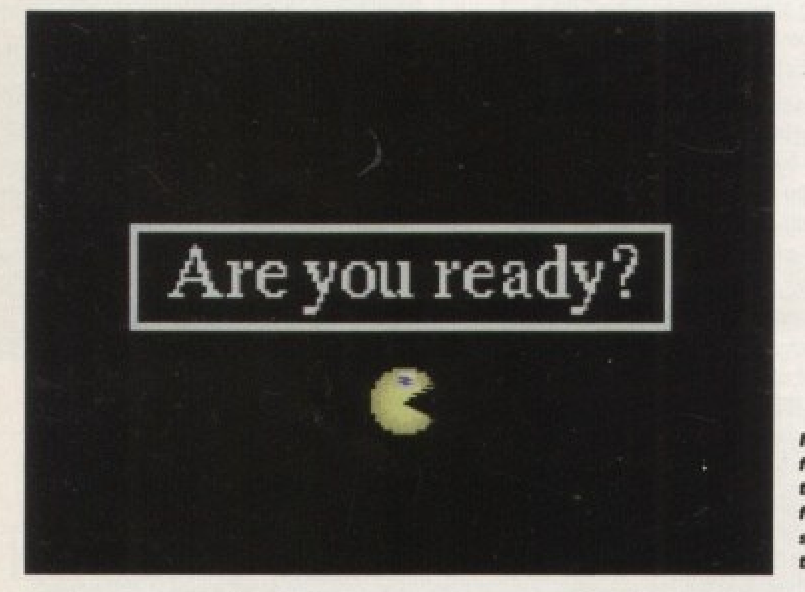
Following this is the actual graphics data of the sprite, ie what you will actually see on the screen. At the end of all this are the control words for the next sprite – yes, you can produce more than one sprite per DMA channel, providing there is at least one scanline between them vertically.

```
OUR_SPRITE:

DC.W     $YYXX, $NNBB     (CONTROL WORDS)
DC.W     $----, $----
DC.W     $----, $----     (GRAPHICS DATA)
DC.W     $0000, $0000     (END OF SPRITE)

XX = X-coordinate of sprite
YY = Y-coordinate of sprite
NN = line after the last line of sprite
BB = other bits
```

Fig. 1 Layout of sprite structure



If you have followed the tutorial so far, you should see these results

Reading the ports

Reading the keyboard couldn't be easier, because the hardware does all the tricky stuff like handshaking the keyboard for you – all you have to do is read the byte held in CIAASDR ($BFEC01), decode it (see the source code on the CoverDisk) and there is the key code of the key being pressed.

If you have a copy of the Amiga coders' bible, more commonly known as the Amiga Hardware Reference Manual, then look up page 249 to see what codes apply to which keys.

Reading the joystick/mouse isn't quite as simple, but isn't difficult either. You read JOY0DAT ($DFF00A) for port 1 or JOY1DAT ($DFF00C) for port 2. The joystick has four switches (left/right/up/down), so when the joystick is pressed diagonally, two switches are closed (eg left and up).

So you've got the word you've read from JOY0DAT or JOY1DAT, if bit one is one then the right switch is being pressed, if it's zero then it's not. Similarly if bit nine is one then the left switch is being pressed.

You can test these bits with the BTST instruction (short for Bit TeST), eg btst #9,d0. To test if the joystick has been pressed forward or back isn't as straightforward. You will need to XOR bit zero to bit one to find the state of the back switch, and XOR bit eight to bit nine to find the state of the forward switch.

Again, if you can't get your head round what I'm saying here then look at this month's source code to see how it's actually done in practice. We want to test for the Fire button being pressed too – the state of the Fire button is stored in bit six of CIAAPRA ($BFE001) for port one and bit seven for port two; a zero means the Fire button is being pressed while a one means it isn't.

For example, the piece of code below would wait for the Fire button of the joystick plugged into port two (the normal joystick port) to be pressed, you would call it with a bsr wait_fire:

```
wait_fire:  btst #7,$bfe001  bne.s  wait_fire  rts
```

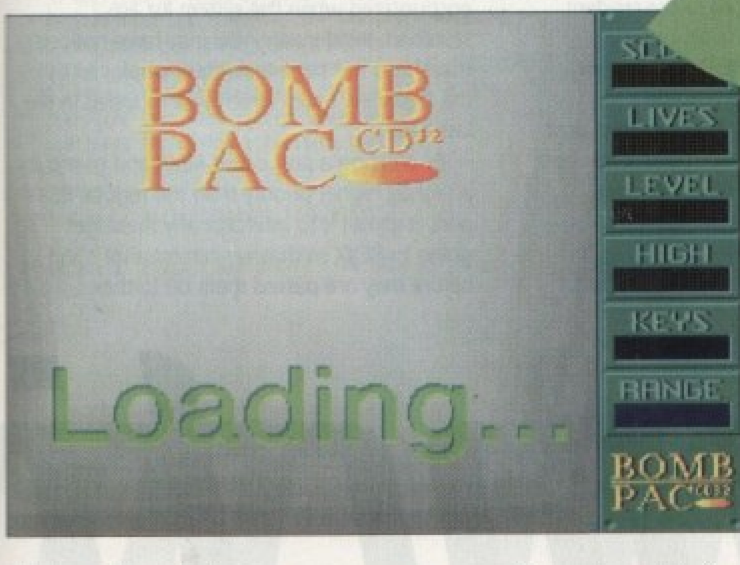
While we're on the subject, I'll explain briefly how you read the mouse. Just like with the joystick, you read JOY0DAT or JOY1DAT depending on which port the mouse is plugged into (usually port one).

First of all, the word is split into two bytes, the high byte being the vertical state of the mouse and the low byte the horizontal state. Now, what you have to do every frame is subtract the new x and y values from the old values from the last frame.

So what you are left with is the difference from the last frame to the present one for the horizontal and vertical directions. If you want a mouse pointer on the screen like the one on the Workbench screen then you just have to add these values to your x and y co-ordinates, check that doesn't put the pointer off the screen, then call your routine that sets the sprite's control words.



Adding the Pacman character to our game is the subject of the second part of Mark Jackson's Assembler series



Moving on to greater things is a simple step once you have the beginnings

However, if you don't want any more sprites you put two zero words in to mark the end.

This all sounds pretty easy so far, but nothing in life is as easy as you first think! To make life more difficult, Commodore decided to split up the bits that make up the x, y & n co-ordinates, so the layout of the control words ends up looking like Fig II. To give a horizontal range of 0 to 447 and a vertical range of 0 to about 300 requires nine bits of data (eight bits only give a range from 0 to 255).

SIGNIFICANT

The most significant bits of the y co-ordinate and the line after the last line of the sprite co-ordinate and the least significant bit of the x co-ordinate are stored in the last three bits of control word two, while the other eight bits of each of them are grouped together as bytes and stored as shown in Fig II.

Some coders don't bother using Y8, N8 & X0 for ease of use (or because they're too lazy to code a proper routine); this means that the sprite can only be positioned on an even x co-ordinate and can't enter the bottom 56 lines of the screen!

Of course, we'll use a proper routine. To see how the bits are set in the control words look at the source code on this month's CoverDisk. The way I do it is to work on the co-ordinates as separate words and then every frame, set the control words from them.

Now as I've said before, the main Pacman sprite is going to be a 16-colour attached one. It is very easy to attach two sprites once you've done all of the tricky stuff of setting the control words on the first sprite – all you have to do is copy the control words from the first sprite to the second one so they both appear at exactly the same position on the screen, then just set the attach bit of the second sprite's second control word (bit seven). Simple as that!

The sprites you attach must be sprite pairs though, ie you can attach sprite one to sprite zero, sprite three to sprite two, sprite five to sprite four and sprite seven to sprite six. You couldn't, for example, attach sprite two to sprite six.

The sprite pairs are used for other things too, like hardware collision detection; you can only test for collisions between sprite pairs, eg if sprite zero or one has hit sprite four or five, or sprite six or seven.

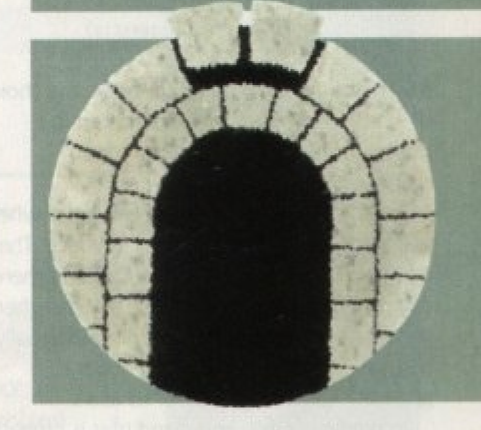
Some thought therefore needs to be given to which sprites you use for which things; if you were writing a Breakout-style game with the bat and ball as hardware sprites, you wouldn't want to make the bat sprite 0 and the ball sprite 1 as you couldn't use the hardware method to detect a collision between them.

The sprite pairs come up again when you come to set the sprite's colours. Each sprite pair can have a separate set of colours, the hardware sprites using colours 17-31. The colour allocation is shown in Fig III.

	Transparent	Colour 1	Colour2	Colour 3
Sprites 0&1	Col 16	Col 17	Col 18	Col 19
Sprites 2&3	Col 20	Col 21	Col 22	Col 23
Sprites 4&5	Col 24	Col 25	Col 26	Col 27
Sprites 5&6	Col 28	Col 29	Col 30	Col 31

Fig. 3 Allocation of colours for hardware sprites

Assembler



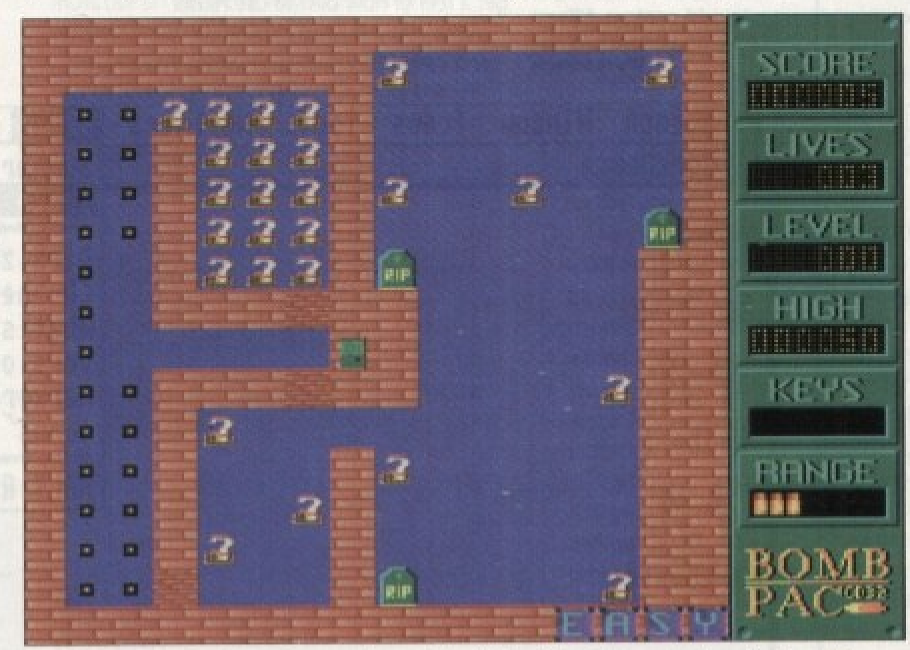
The video priority between hardware sprites is fixed; sprite zero appears above sprite one, which appears above sprite two, and so on. However you can set the order in which they appear in relation to the playfield (the normal screen), or playfields if you've set up a dual-playfield screen, with BPLCON2. We want all sprites to appear above the playfield, so we'll set BPLCON2 to $20.

BLITTER

You may notice in this month's source code that I've used the blitter to copy the "are you ready?", "paused" and "game over" graphics onto the screen (after copying what was already on the screen into a buffer of course, so we can restore it after).

Well, I haven't got time this month to go into the inner workings of the Amiga's infamous blitter chip, but you can look forward to that in a future article

● I'll be back next month with more tales from machine code land about setting up our screen with all those little dots and paths and things, while not forgetting the hardware collision detection.



From here we'll look at other sprites and collision detections, as above in BombPac

Bit number	15	14	13	12	11	09	08	07	06	05	04	03	02	01	00	
Word 1	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0	X8	X7	X6	X5	X4	X3	X2	X1
Word 2	N7	N6	N5	N4	N3	N2	N1	N0	A	–	–	–	–	Y8	N8	X0

A = Attachment bit

Fig. 2 Format of control words

Continuing our saga on interfacing with ARexx, this month we are looking at function hosts. In contrast to a command host, which allows specific commands to be sent to it, a function host allows new functions to be added to ARexx, as if the host was a library.

The functions added are global, and they will be available to any calling ARexx program; the program does not even need to know that the host is running, as this is taken care of by the resident process.

There are advantages and disadvantages to using function hosts. On the minus side, the global naming convention used by function hosts could cause a name clash.

It may also be better for a user to know that he is sending his messages to a specific package – this way he has a clearer idea of what is going on.

On the plus side, function hosts handle results in a neater manner than command hosts, since you do not have to use the:

```
OPTIONS RESULTS;........; ADDRESS 'hostad-
dress' 'hostcommand'; x=RESULT;...
```

kludge. With a function host all you need is an expression like:

```
x=hostfunction(arguments)
```

to achieve the same end. Ultimately, the choice of which interface to use depends on the programmer and the specific program requirements.

Broadly speaking, there are two cases where you are likely to need an ARexx interface. Their distinction is by no means clear cut, and there can be a great deal of overlap. They are when the program needs to be controlled externally, perhaps remotely, and when it needs to provide a batch language for its users.

In the first case, a command host is probably a better idea, while in the second case a function host may do a better job, especially if a lot of results are involved.

Since – for the purposes of ARexx – a function host behaves pretty much like a library, it could be used to prototype a library of useful functions.

By now, you should be quite familiar with the ARexx hierarchy of function resolution, ie 1. program defined functions, 2. built-in ARexx functions, 3. libraries and function hosts, and 4. external ARexx macro programs (in REXX: or the current directory).

The RXLIB command (without any arguments) will show you all the libraries and hosts available to the ARexx system at any time. This command is also used to attach new libraries, but function hosts are responsible for attaching themselves to the system. This is described below.

We have already said that despite their apparent differences, function hosts and command hosts are quite similar in their underlying structure. The main differences are in the way that the message gets to the host, and the way that the arguments and results are handled.

However, both hosts are quite similar in their basics. Once it gets a valid message, the host must decode the RexxArgs (see previous issue) so that it knows what the command/function is and what the arguments are.

From then on, it is entirely up to the programmer to decide what action to take. When it is time to reply to the message (preferably as soon as possible) the appropriate RexxArgs are created, stuffed into the message slots, and the message is then replied to.

In order for the function host to register itself with ARexx, so that ARexx can check if any undefined functions belong to it, it must send a special command (rm_Action) to the resident process.

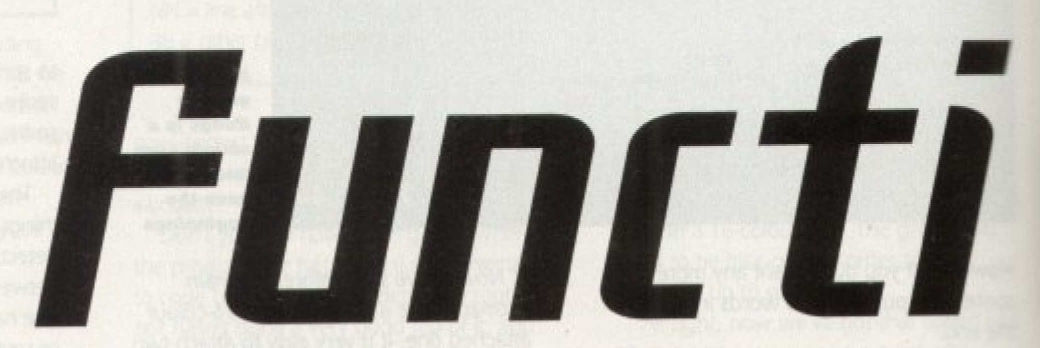
This is known as the RXADDFH command and is defined as the four-byte value '07000000'x. It is the first command that must be sent by the host. After this, the function host will be checked for all calls which are not program-defined or built-in.

When the RXADDFH command is sent, its first argument is the name of the host's port, and its second argument is the port's priority. Likewise there is a RXREMFH command for when the function hosts wants to disconnect from the ARexx system.

Since just about every element of the Amiga's OS kernel has a priority, ports are no exception, and this can be used to give a small increase in speed by giving the port a slightly higher priority than other ARexx ports running at the same time.

This means that this port will be the first one encountered when the system list are searched. Incidentally, you may have noticed that this is the same technique employed by the RexxView utility which was included in the last issue.

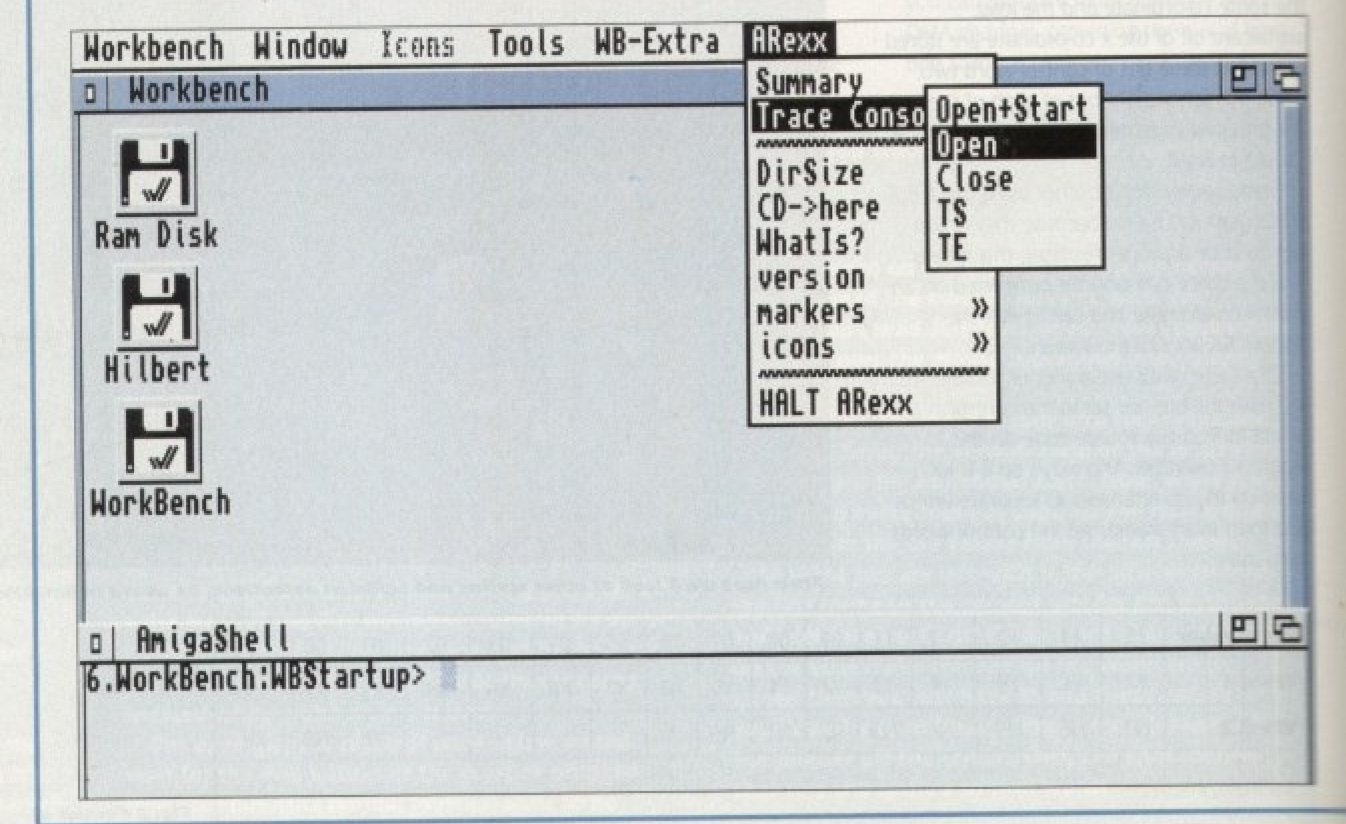
By creating a port called REXX and giving it a slightly higher priority than the regular REXX port, it allows it to intercept any messages going to REXX so that we can monitor them before they are passed them on to their



Back to ARexx basics

I have devoted most of the space in the last four issues to fairly technical subjects, so here, out of consideration to newer users, we'll look at certain neat tricks that will enable you to streamline the use of your system, and also get a feel of how best to use ARexx.

All of you will have noticed the Workbench menu called Tools which normally has only one item – ResetWB. Some (probably most) of you will also know that there are several utilities available (eg Tool Manager, ToolsDeamon and so on) that allow you to launch programs of your choice from these menus. Most of these utilities are freely distributable, so it is really worth your while getting copies. Whereas these tool manager-



Using a tool manager to add custom ARexx support to the Workbench

legitimate owner. This may not be the most legal of ARexx programming techniques, but it is certainly handy for our purposes at this stage!

Here is a code fragment showing how a function host would add itself to the system. We use the same system that we have used in our examples so far, ie an ARexx program which combines rexxsupport.library calls, along with a number of exec.library calls where rexxsupport is not flexible enough. We use rxgen.library to access the Exec functions directly from ARexx. (See Listing I).

For the sake of clarity we do not include any checks here, but, of course, they are essential if the program is to have any semblance of robustness. The host must also release the system at some stage using RXREMFH.

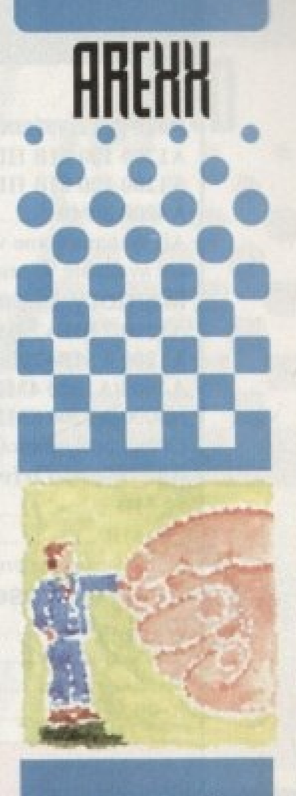
● We will look at a complete version of this program next time. See you then...

```
/* we will need the folowing defintions for rxgen */
/* in addition to those we have already. They are */
/* derived from the FD files. See the rxgen docs  */
LIBS.exec.PutMsg = 'FE92'x||AA||'20090a'x
LIBS.rexxsyslib.CreateRexxMsg = 'FF70'x||ASS||'20090a01'x
LIBS.rexxsyslib.DeleteRexxMsg = 'FF6A'x||A||'2009'x
/* There are they ARexx action codes and */
/* modifiers for adding a function host */
RXADDFH = '07000000'x
RXFB_NONRET = 20
ActionCode = BitSet(RXADDFH,RXFB_NONRET)
..............
/* We now allocate a RexxMsg to send */

/*assume all libraries properly open */
/*and port is defined */
packet = GenACall("rexxsyslib","CreateRexxMsg",port_addr,'','')
/* include a check for port creation*/
/*place values in RexxMsg */
CALL Export(Offset(packet,28),ActionCode,4)
.......
/*send the message*/
/*(first check that REXX is up and running)*/
rexx_addr = GenACall("exec","FindPort","REXX")
CALL GenACall("exec","PutMsg",rexx_addr,packet)
/* that's it   our host is now registered! */
```

Listing I

on hosts



Alex Gian on ARexx interfacing, plus hints and tips for budding users of the language

type programs allow you to launch applications without having to open up drawers, their main strength is that they allow Workbench mouse selections to be used as parameters. This means that you can select a Workbench icon and pass it to an ARexx script as an argument.

I have found several excellent uses for this. Here is one I use all the time. Do you sometimes use the Workbench to examine files that are deeply nested on a hard disk drive or even a CD-ROM, and then need to do some more elaborate work, which requires a Shell?

You have to open a Shell window and type in the directory you need, which may be a very long name indeed, eg:

```
Work:subdir1/subdir2/.../subdirN.
```

If you have to do this a lot, it can get irritating. The following little script can be attached to your tool manager utility and will automatically open a Shell window with the current directory set to the icon you have clicked on, no matter how deeply nested it is! I have called the script CDhere.rexx, (see listing II) and I use it with N Francois's excellent ToolsDeamon.

Note that the first line in the GetDirName() function assumes that you have added RegExp.library to your system. I described this library, and the regular expression syntax, back in the January issue. If you do not have it, you must use an alternate way to extract the directory name only from the full path name.

There are several ways to do this. Here is a macro based on using the position of the last ":" or "/" encountered. Note that it assumes that the argument is of the form Dev:dir1/dir2/dir3... etc and does not check this:

```
/*DirName.rexx : get the directory name*/
fullname=arg(1)
col=lastpos(':',fullname)
sla=lastpos('/',fullname)
mark=max(col,sla)
PARSE VAR fullname dirname +mark filename
RETURN dirname
```

If you use the above method, then you should substitute the first line in the GetDirName() function with:

```
here = DirName(here)
```

and add the above macro to your REXX: directory. Another approach to this problem could use the redirected output of the AmigaDOS command list <fullname> lformat %f in an ARexx script.

There are several other uses for this kind of script in conjunction with a tool manager; since they allow such a high degree of customisation, they will be mainly dependent on the user.

They can be used to replace much of the work of bulky directory managers. Some of the commoner uses I have found include handling the ARexx tracing console, creating a friendlier interface to archivers like zoo and lha, getting directory sizes and information about files, as well as several specialised and individual uses.

Some of these uses could be handled by AmigaDOS scripts, but most would be too awkward, especially if they had nontrivial parsing or mathematical requirements.

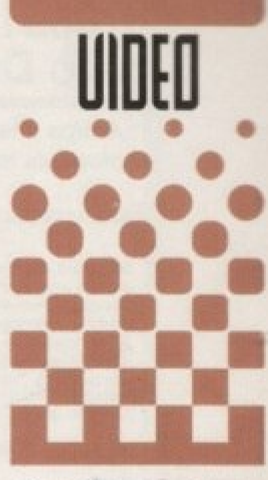
With AmigaDOS you might find the need for custom commands, whereas ARexx lets you write them yourself. It provides an ideal and integrated way to link up everything in your system. Happy experimenting...

```
/* CDhere.rexx */
PARSE ARG '22'x here '22'x
/* Determine if our selection is a directory,  */
/* a simple file, or an icon (.info) without a
file */
PARSE VALUE StateF(here) WITH type .
SELECT
   WHEN type = 'FILE' THEN CALL GetDirName()
   WHEN type = 'DIR' THEN CALL CDHere()
   OTHERWISE DO
       here = here || '.info'
       IF Exists(here) THEN CALL GetDirName()
       ELSE DO /* You should NEVER get here */
           SAY 'Strange Error   selection: '
here '0a'x 'is not a File or Dir!'
           EXIT 5
           END
       END
   END
EXIT 0

GetDirName:
   here = RESubstr(here,'.+[:/]')
   CALL CDHere()
   RETURN

CDHere:
   Pragma('d',here)
   ADDRESS COMMAND 'newshell >nil:'
   RETURN
```

Listing II





Time-coding made simple

Adam Phillips takes a close look at time-coding, one of the most crucial elements of any editing suite

Editing is where the video finally comes together – it's a time when a bad film can be rescued and a good video ruined with clumsy, inappropriate cutting and lack of timing.

Time code is the heart of any editing suite. The system offers a means of identifying each consecutive frame of recording with a cumulative time counter. This reading is given in eight figures – hours, minutes, seconds and frames.

It allows material to be lined up down to the last frame and also gives the editing suite a point of reference when asked to perform a cut – without one, it couldn't operate.

One of the most common problems encountered with amateur videos are the timing of the cuts. This isn't usually down to the editor but more the equipment that is being used – without the time code, you'll be relying on luck to give you accuracy.



The time-code display as found in professional editing suites

In professional broadcasting, frame accuracy has to be exact. Simply working with two video recorders connected by a couple of leads is not enough – there is no way of setting them to run at the same time and the same speed without spending some cash on necessary Amiga hardware to aid you in your endeavours.

There are different types of time code systems on offer, the two most common for the amateur being VITC and RCTC. VITC (Vertical Interval Time Code) is found on VHS video recorders and camcorders. The code is written onto the tape as it passes by the video heads.

> *If you want your video to look as if it just rolled out of the BBC, then accurate and polished editing is vital.*

This is done by placing the necessary information as lines at the start of each video track. Fortunately, when replayed, this info is out of sight and is only read by the recorder.

It's vital that the time code is recorded during shooting and if not then, during a copying process that'll lay down one for you.

SHOOTING

RCTC (Rewritable Commercial Time Code) allows the user to rewrite or add the code after the material has been shot, as well as recording it during shooting. This leads to much more flexibility and versatility due to its unrestrictive nature.

Another important and time-saving advantage of time code is the help it can offer when logging the tapes. As discussed a few months back in these pages, logging is a process where all the shots on each tape are written down with their respective time code readings.

In the editing suite, this means that shots can be found easily and with speed thus saving money and frustration. It's vital that the tape you are going to record your video on to is time-coded as well.

Without, the machine will be able to read the tape that images are to come from but it won't be able to place them on the receiving recorder. The preparation process is called black'n' bursting.

This simply means that you place the cassette into a time code generator and record black onto the tape therefore preparing it for editing. This is easily achieved by placing the cap on the lens and detaching the microphone to rid the tape of any unwanted noise.

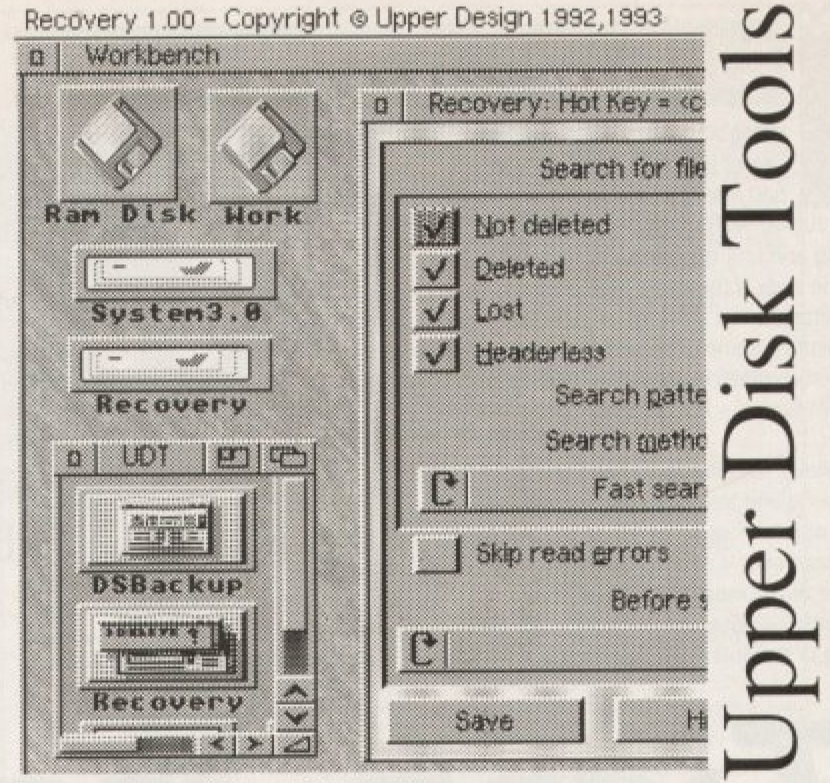
Another useful tip if you're doing several cuts of the video: it's advisable to make copies of the original footage and use these for the off-line versions (the rough cut, second cut and so on). This puts less wear and tear on the originals and helps prevent any harm coming to them before the final cut is reached via dirty heads or coffee spillages (after all, no-one is perfect).

Above all, if you want your video to look as if it just rolled out of the BBC, then accurate and polished editing is vital.

Clever camcorders

Some camcorders have built-in time code generators or, usually, an add-on that can be plugged straight in to the unit. Whenever the machine begins to record, it'll automatically start to lay the time code down on the tape and it's common to see this displayed via the viewfinder.

You'll find that, once in an editing suite that has the right compatibility and a time scode reader (either provided by the original camcorder or a VCR with a reader), the time will appear on the editing console digital display.



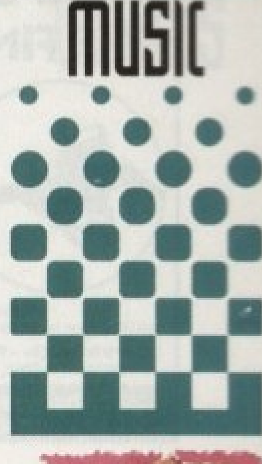
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Work
System3.0
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UDT
DSBackup
Recovery
Recovery: Hot Key = <c
Search for file
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Lost
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Search patte
Search metho
Fast sear
Skip read errors
Before
Save

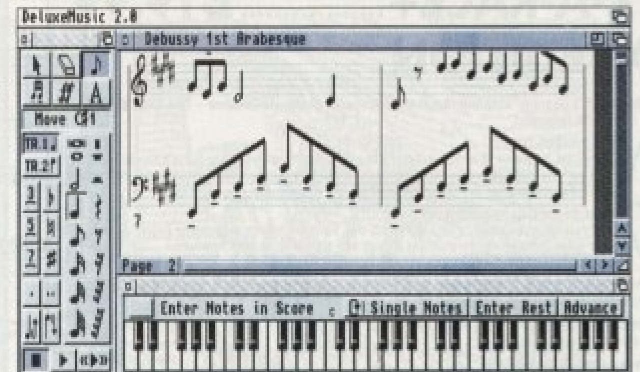


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Deluxe Music 2 – clever interactive score handling which looks promising providing the bugs are ironed out

The importance of dots



No punches pulled this month as Paul Overaa checks out two music programs that provide affordable score notation facilities

Not everyone either wants, or can afford, an Amiga music system built around heavyweight sequencer and notation software like Dr T's KCS and Copyist software.

There are however plenty of users who are finding that some sort of notation facilities are a useful extra to have around and at the more affordable end of the market there are two Amiga music programs that, to some extent, fit the bill.

One of these is Deluxe Music 2, the new version of Electronic Arts' Deluxe Music Construction Set program which made a relatively quiet entry into the marketplace during the latter part of last year.

Because of its price, integral score handling facilities, the ability to operate with both Midi and internal Amiga sounds, and the fact that it is primarily aimed at home users, the program superficially bears comparison to the other affordable notation-oriented contender – Dr T's Tiger Cub. I say superficially because while these two packages have all the above goals in common, they are actually aimed at very different markets as far as usage is concerned.

Deluxe Music 2 is not a sequencer as such – it's more an interactive musical notation program. Composition revolves around Deluxe Music's Score Window which appears on the screen, together with the Tool Window and Piano Keyboard, when the program first loads.

You enter music into this window in one of four ways: By loading a song from disk; by selecting notes from a Tool window and dropping them onto the staff; by playing them on the on-screen piano keyboard; or by entering them via a Midi keyboard connected to your Amiga with a Midi interface.

Deluxe Music 2 is easy to use and the latest version has many new features. Up to 48 staves can be used, you can have multiple song projects open at the same time, and there is improved note resolution (64th notes and rests and septuplets are available).

A stand-alone player module, keystroke macros and an ARexx interface have been added and the Midi options now include some long awaited Midi file support.

The key element as far Deluxe Music is concerned however is that the score display facilities are interactive. Once entered into a score, notes and chord positions are still completely flexible so you can click on notes and drag them to a new position. You can also move notes and chords horizontally in the same manner

Because of this, Deluxe Music is particularly suitable for educational purposes and you can, for instance, mark sections of a song for repeats then have the notes of the song flashed as the section is played. When you are learning to read music such facilities are quite useful.

TEETHING

One piece of bad news that hasn't received the attention that it should is that Deluxe Music seems to be having more than its fair share of teething troubles.

I've even been able to crash the program at times by just attempting to load a Midi file (some load OK, some don't). To their credit Electronic Arts are rapidly sorting out the problems, so if you've already bought a copy and are having difficulties then get onto EA's technical support team (0753 549442) for the latest update disk.

Dr T's Tiger Cub goes in rather a different direction to Deluxe Music. Basically Tiger Cub is a 12-track Midi sequencer with rock solid timing that also offers good internal sound facilities. In addition to this the package includes a QuickScore module which is able to convert Tiger Cub sequence data into conventional musical scores.

Unlike Deluxe Music, though, the score handling facilities are view/print only (although some notation display adjustments are provided). To edit notes you must leave QuickScore and return to Tiger Cub's sequencer-style editing.

These edit facilities revolve around a notation scheme whereby notes are displayed as horizontal bars with the horizontal length of a bar indicating the duration of the note.

The height of a particular note stem represents the note on velocity; it measures how hard notes are struck (both of these aspects can be edited individually using the mouse).

The graphic editor works on a single track at a time using a track window which provides gadgets for inserting, copying and moving notes, changing the edit screen display magnification and so on. There's also a controller window available for editing controllers, pitch bend data, aftertouch and so on.

Tiger Cub can be used without any Midi equipment at all but in all honesty it functions best as an entry-level Midi sequencer. In this guise it does a very good job indeed.



Tiger Cub – a good entry-level sequencer with score display/ printing facilities

Buy lines

- Deluxe Music 2 costs £67.90 and is available from Hobbyte Computers (tel: 0727 856005).

- Tiger Cub costs £59.95 and is available from Key Audio Systems (0245 344001). You might, incidentally, be interested to know that a company called Avalon Music Development (tel 081-699 7004) now provide a UK technical helpline for registered users of all Dr T's music software.

Game, net and match

Comms watcher Phil South fills us in on the latest in the world of communications


The world becomes a much smaller place when you can communicate via Internet



Just a thought. These items I'm about to describe to you are essential reading for the comms nut. Don't just think about reading them, get them today.

First I would humbly suggest you go and buy the **New Hacker's Dictionary** (MIT Press) edited by Eric Raymond. This book is a hard-copy version of the famous Usenet Jargon File, which was collected together as a sort of frequently asked questions file on the kind of language used on the nets and in computer circles.

It grew and grew, and indeed even after this book was published it still continued to grow and is available on-line in many forms. This book is a sort of document of where the jargon file was at in 1991, and although it's a big thick book, it's meant to be dipped into at random and cross referenced. It contains entries like the following:

fritterware n. An excess of capability that serves no productive end. The canonical example is the font-diddling software on the Mac (see **macdink**); the term describes anything that eats huge amounts of time for quite marginal gains in function but seduces people into using it anyway.

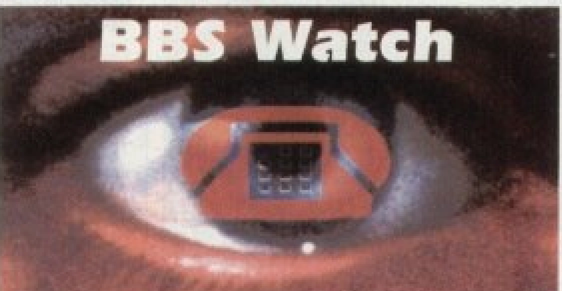
like kicking dead whales down the beach adj. Describes a slow, difficult, and disgusting process. First popularized by a famous quote about the difficulty of getting work done under one of IBM's mainframe OSes. "Well, you could write a C compiler in COBOL, but it would be like kicking dead whales down the beach." See also **fear and loathing.**

hack 1. n. Originally, a quick job that produces what is needed, but not well. 2. n. An incredibly good, and perhaps very time consuming piece of work that produces exactly what is needed. 3. vt. To bear emotionally or physically. "I can't hack this heat!" 4. vt. To work on something (typically a program). In an immediate sense: "What are you doing?" "I'm hacking TECO." In a general (time extended) sense: "What do you do around here?" "I hack TECO." More generally, "I hack foo" is roughly equivalent to "foo is my major interest (or project)". "I hack solid state physics." 5. vt. To pull a prank on. See sense 2 and hacker (sense 5). 6. vi. To interact with the computer in a playful and exploratory rather than goal-directed way. "Whatcha up to?" "Oh, just hacking." 7. n. short for hacker. 8. see nethack.

As you can see a comprehensive and very readable tome for the light-hearted hacker. It also has the best definition of the word hacker I've ever seen! Any stupid tabloid journalist should check this book out before writing anything about computers. It would save us all a lot of grief.

The second item of reading matter is **Wired** magazine. It's the hackers' magazine of choice, and regularly features new areas of the net to go and explore, plus a number of really good related topics.

You can get it from Counter Productions, PO Box 556, London, SE5 0RL. Send for a free catalogue of other great and weird books and magazines.



More of you sysops are sending me letters and email about your BBSs, and although I can't guarantee I'll visit them and review them, I will always give them a mention. Send your details to the usual address.

First up is Robert Dale who writes:

"I enjoyed your recent article... and you asked for details of other bulletin boards (a follow up to Lee Sander's letter). Well, you're more than welcome to give mine a bell on 081-683 3536! It's called Darkside, is on-line 24 hours using a 16k8 HST modem, has over 200 echoes from Fido, Amiganet and Mercurynet and runs on the Xenolink Pro BBS software.

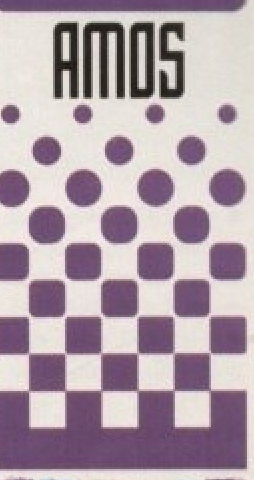
File buffs are catered for with 1.2 gigs of hard drive file space (about ¾ full at the moment) and a CD-ROM on-line (currently the AmiNet CD, but with several others available.) The BBS has been running for just under a year now, and has attracted over 350 regular users. Well worth a look IMHO."

In case you didn't know, IMHO is net-speak for In My Humble Opinion. Also you might like to try this suggestion from Paul Sherlock:

"I am writing to tell you about a BBS system called Wacky Carrot. It is based in West Malling in Kent on 0732 871878. I started downloading files but could not run them, so I left a message for the sysop and he was extremely helpful, talking me through all the compacting and archiving utils."

What a nice chap. It's worthwhile learning about compaction and archive utilities, just in case you happen across some wacky ones on the Net. I'll perhaps do a run-down of some of the weirder ones next time.

Winter in July





Phil South with a decidedly unseasonal but undeniably neat snowing text routine

I like to see your programs, and the last few months have seen a cascading pile of disks coming my way, containing programs and games. The stuff has all been of an unusually high quality and I'm very impressed. It just goes to show if you place a programming tool of sufficient complexity in the hands of enough people, you can create a lot of creative stuff.

I think the big software houses could learn a thing or two from you. A big thanks to everyone who has sent in a program recently. If you want to send something to me, then check out my submission guidelines below.

One of the best routines I've seen this month is a unique method of sending text onto the screen, created by Malcolm Lavery. Mal has contributed a number of routines on disk and we'll be visiting his source code periodically over the next few months.

This routine sends text snowing in from the top of the screen. The effect is quite hypnotic, and very cleverly done.

```
'*****************************************
'*           Snowing Text               *
'*                                      *
'*        By Malcolm Lavery             *
'*****************************************
'
Screen Open 0,320,256,16,Lowres
Palette $0,$FFF
Cls 0
Screen Open 1,320,256,16,Lowres
Cls 0
```

After the usual guff we set the palette to black and white:

```
Palette $0,$FFF
```

Then double buffering is switched on and synchro is switched off. This means you have more control over the screen refreshes:

```
Double Buffer
Synchro Off
```

Now we can set up some variables:

```
POS=0
Global B,A$,TEX$,POS
```

and then we're into the main program loop:

```
Do
   IN
   Synchro
   Wait Vbl
Loop
```

The procedure which controls the routine's snowing text is called IN, but of course you could call it SNOW or something like that:

```
Procedure IN
```

Choose screen 0 and clear it:

```
Screen 0
Cls 0
```

The variable TEX$ contains the text you want to snow down the screen:

```
TEX$="    ITS SNOWING TEXT JUST FOR YOU    "
TEX$=TEX$+"SO PUT ON YOUR WELLIES AND COME OUT"
TEX$=TEX$+"NOT VERY EXCITING THIS METHOD IS IT  "
TEX$=TEX$+"  BUT IT LOOKS BETTER OVER IFFY'S    "
TEX$=TEX$+"          BYE BYEEEEEE               "
```

And then you can grab letters from the text from various positions in the line using the following routine:

```
'*************************
TE$=Mid$(TEX$,POS,37)
Gr Writing 0
Ink 1,0
Text 10,10,TE$
'*************************
```

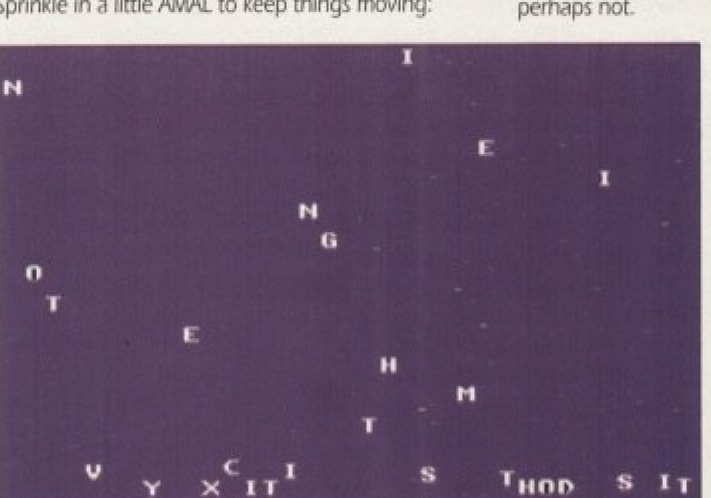
and this routine puts the bobs to the screen:

```
B=1
For X=10 To 300 Step 8
   Get Bob B,X,0 To X+7,18
   Add B,1
Next X
Add POS,37
If POS=Len(TEX$)
   POS=0
End If
Screen 1
B=1
Y=-500
I=1
For X=10 To 300 Step 8
   Bob B,X,Y,B
   Add B,1
Next X
Dim CHECK(38)
Repeat
   R=1+Rnd(36)
```

Sprinkle in a little AMAL to keep things moving:

```
   If CHECK(R)=0
      Channel R To Bob R
      A$="Move 0,740,50;Move 0,-10,5;Move
        0,10,5;"
      Amal R,A$
      Amal On R
      Synchro
      CHECK(R)=1
      Add COUNT,1
      Add I,1
   End If
Until COUNT=37
For TT=1 To 100
   Synchro
   Wait Vbl
Next TT
For R=1 To 37
   Channel R To Bob R
   A$="Move 0,20,5;"
   Amal R,A$
   Amal On R
   Synchro
   Wait Vbl
Next R
For TT=1 To 50
   Synchro
   Wait Vbl
Next TT
End Proc
```

and that's it! It's snowing text. Sounds like that should be a single by The Weather Girls. Or perhaps not.



Simple, maybe, but clever and quite hypnotic

Jiffy bags are go

If you want to send in your routines to me, please by all means do so, but send the programs as Ascii text, and ensure that they are typable, that is to say not too much stuff stripped in from disk as ABK files.

Try to create any bobs etc using the DRAW and GET BOB commands, like this month's example. Also make sure that the program is short enough to go on the page. It's not very often I get to spread the Amos column over two pages, so do a quick word count on your program using a word processor and make sure it only contains about 400-500 words. Send the program on disk to the normal address.

If you have an Amos question, or a program to contribute, then please write to Phil South, Amos Column, Amiga Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.

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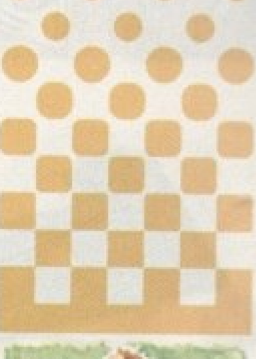
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Finishing touches

How to improve on real life by retouching your photographs. Ben Pointer exposes the tricks of the trade





Why would we want to retouch a photograph? Well, there are three main reasons. The most obvious one is to repair damaged photographs, usually old ones. This is a painstaking but very worthwhile pastime, and possibly a profitable one too.

Purists might argue that a digital version of the photo is not the same thing, that part of the attraction is the age of the photo, and even the smell of it, but if the image is fading, preserving that image has to be the most important thing.

People will pay to have their old photos restored to their former glory. Once in the computer, a slide-show of photos can be transferred to video tape, which is a bit tacky but by far the cheapest option, or on to CD-ROM in any file format they wish, or printed on a dye sublimation printer – the results of which will be almost indistinguishable from a real photograph.

The recent launch of the Fargo Primera dye sub printer has brought the power of this printing process within the pocket of the very small business.

A second reason for retouching photos is to enhance one or more features in the photo. The fashion magazine industry uses photo retouching extensively for almost all portraits of models, especially cover portraits.

Lips are smoothed, re-shaped and re-coloured. Zits and wayward strands of hair are removed. Eyes are brightened and often re-shaped to look sexier or more innocent.

Retouching fashion photos is a highly skilled and highly paid job. To get proper photo-realistic results you have to work with massive 24-bit or 32-bit images, perhaps 4,000 pixels wide by 5,000 pixels high.

Lots of memory is required, lots of hard disk space is required, and the fastest possible CPU is required, and even then it can take a whole day to retouch just one photo.

A third reason for retouching is what I use it for most – altering photos. There are a million reasons why you would want to alter a photo. One obvious reason is to combine bits of two or more photos into one graphic, or compositing as it is called. Another is to turn a mediocre photograph into a better one, which is what my example this month is all about.

Take a look at the original photo shown. There are two elementary things wrong with it. First, someone has walked behind one of the girl's heads just when the photo was snapped.

Second, the group is not tight enough, in fact the girl on the right is being totally excluded from the group because she is so far away from the boy. Fixing this type of problems is a lot easier than it might at first appear – provided you have the correct tools. Top of the list has to be a fast Amiga with at least 8Mb of RAM (much more is much better) and a fairly large hard drive.

If the Amiga is not AGA, then you really do need a 24-bit graphics card, but if you've got a beefed-up A1200 or A4000, then working on a Ham-8 screen will be plenty good enough.



In the original photo a man has walked behind one of the girls' heads just at the wrong moment, and the three youngsters are so far apart that they don't appear to be friendly with on another

VIRTUAL

Software-wise you need either GYP's ImageFX or Black Belt's Imagemaster (ADPro cannot do this sort of thing). My preference is ImageFX because it has its own built-in virtual memory; Imagemaster, alas, doesn't, and it doesn't work with GigaMem very well.

Removing the man behind the girl's head was achieved with ImageFX's Pantograph feature. This tool copies pixels from one area to another.

The job was done in three bits. First I copied pixels of the lower beach over the guy's trunks and thigh, then pixels of the sunbathing area over his upper torso, then I manually painted over his head, which was the easiest part because all I had to do was extend the door and wall of that building.

Man removed, the next job was to bring these three young people together. And it is as simple as cutting out brushes and repositioning them. What makes the retouching invisible to the human eye is the blending of the edges of the brush, or feathering as ImageFX calls it.

I set quite a short blend, just four pixels, and for the girl on the right I first cut out a rectangular brush of the whole of the right half of the photo, cutting just to the left of the girl's skirt on the swimsuit.

I then moved this as far across toward the boy as I could without overlapping him, then pasted it down. Little tip here: Use the left Amiga key and the cursor keys for finer control over positioning brushes. Left Amiga-Left Alt is the keyboard equivalent of pressing the left mouse button, and will stamp down the brush.

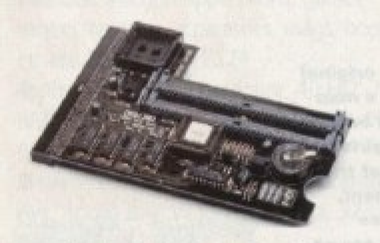
Lastly I cut out one girl after the other as lasso brushes and move them even closer to the boy, every so slightly overlapping the boy with the girl on his left (the one with red hat) as she is leaning away slightly and still looked like she would rather be somewhere else.

Save in IFF24 format, and that's it. If you know some retouching has been done and you look closely, you might just be able to see some tell-tale signs. But no one else will see them, and you will be hailed as a genius and, with any luck, paid lots of money for your time and trouble.



After some retouching in ImageFX we've got rid of the man and brought the kids together. Have a good look and see if you can spot the tell-tale signs of retouching





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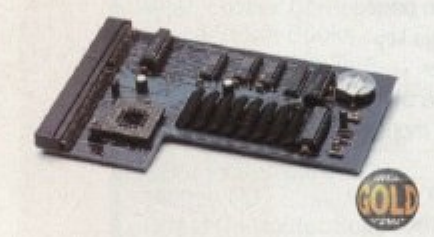
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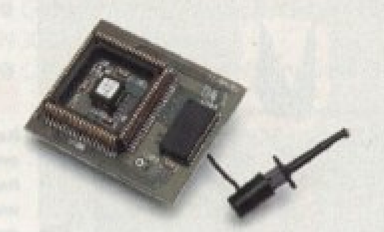
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Disk Expander **£35**

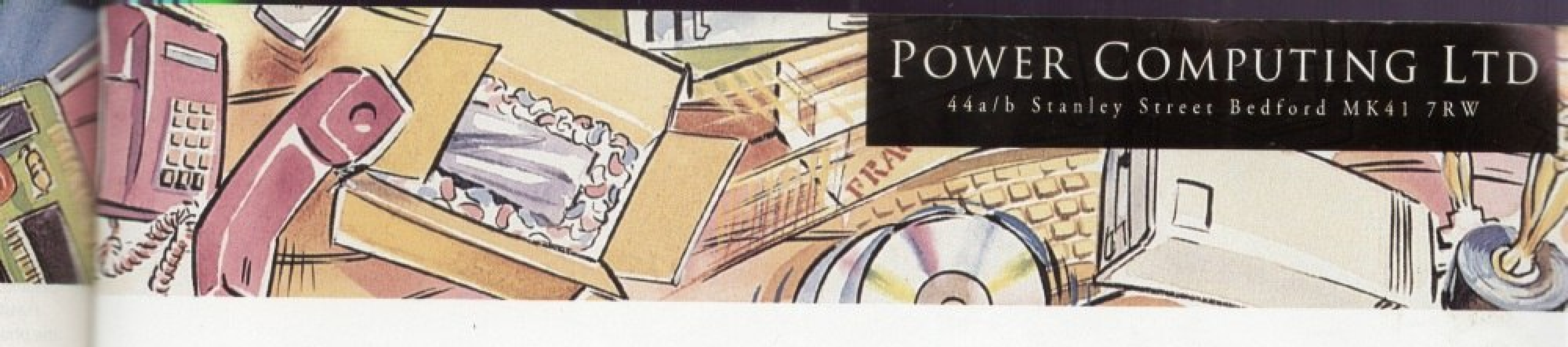
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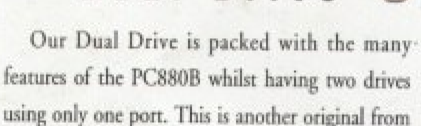
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